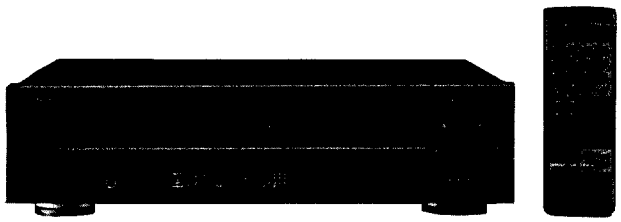
DENON

Hi-Fi Component

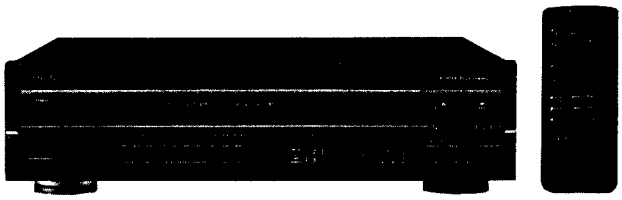
SERVICE MANUAL

MODEL DCM-560
MODEL DCM-460

STEREO CD PLAYER



DCM-560



DCM-460

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NIPPON COLUMBIA CO., LTD.

IMPORTANT TO SAFETY

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION:

1. **Handle the power supply cord carefully**
   Do not damage or deform the power supply cord. If it is damaged or deformed, it may cause electric shock or malfunction when used. When removing from wall outlet, be sure to remove by holding the plug attachment and not by pulling the cord.
2. **Do not open the top cover**
   In order to prevent electric shock, do not open the top cover. If problems occur, contact your DENON dealer.
3. **Do not place anything inside**
   Do not place metal objects or spill liquid inside the CD player. Electric shock or malfunction may result.

Please, record and retain the Model name and serial number of your set shown on the rating label.
Model No. DCM-560/460 Serial No. _____

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instruction in the literature accompanying the appliance.

IMPORTANT (BRITISH MODEL ONLY)

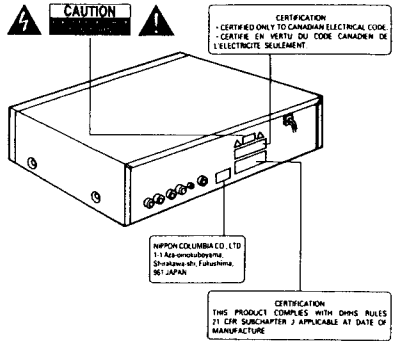
The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral Brown: Live

The colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

NOTE:
This CD player uses the semiconductor laser. To allow you to enjoy music at a stable operation, it is recommended to use this in a room of 10°C (50°F) – 35°C (95°F).

LABELS (for U.S.A. model only)


CAUTION
CERTIFICATION
• CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE
• CERTIFIÉ EN VERTU DU CODE CANADIEN DE L'ELECTRICITÉ SEULEMENT
NIPPON COLUMBIA CO., LTD
1-1 Azs-omotuboyama,
Shirakawa-shi, Fukushima,
961 JAPAN
CERTIFICATION
THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE

CAUTION:
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPERLY QUALIFIED SERVICE PERSONNEL.

NOTE:
This unit may cause interference to radio and television reception if you do not operate it in strict accordance with this OPERATING INSTRUCTIONS.

This unit complies with Class B computing device rules in accordance with the specifications in Sub-part J or Part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. If the unit does cause interference to any radio or television reception, try to reduce it by one or more of the following means:
a) Turn the other unit to improve reception
b) Move this unit
c) Move this unit away from others
d) Plug this unit respectively into a different AC outlet

*** This is note in accordance with Section 15.838 of the FCC Rules.**

• **FOR U.S.A. & CANADA MODEL ONLY**

CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

• **POUR LES MODELES AMERICAINS ET CANADIENS UNIQUEMENT**

ATTENTION

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

SAFETY INSTRUCTIONS

1. Read Instructions – All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions – The safety and operating instructions should be retained for future reference.
3. Heed Warnings – All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions – All operating and use instructions should be followed.
5. Water and Moisture – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands – The appliance should be used only with a cart or stand that is recommended by the manufacturer.

6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. Wall or Ceiling Mounting – The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization – Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

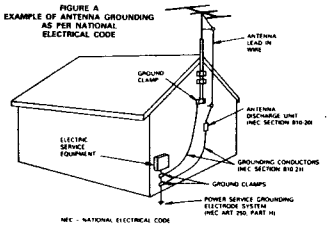
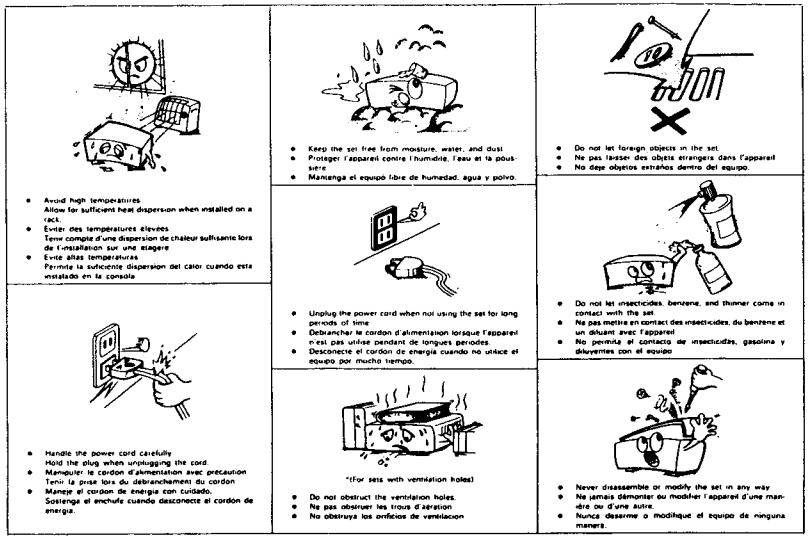


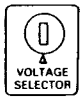
FIGURE A
EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE
ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)
NEC - NATIONAL ELECTRICAL CODE

12. Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
14. Cleaning – The appliance should be cleaned only as recommended by the manufacturer.
15. Power Lines – An outdoor antenna should be located away from power lines.
16. Outdoor Antenna Grounding – If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.
17. Nonuse Periods – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
18. Object and Liquid Entry – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
19. Damage Requiring Service – The appliance should be serviced by qualified service personnel when:
    A. The power-supply cord or the plug has been damaged; or
    B. Objects have fallen, or liquid has been spilled into the appliance; or
    C. The appliance has been exposed to rain; or
    D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
    E. The appliance has been dropped, or the enclosure damaged.
20. Servicing – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

NOTE ON USE/OBSERVATIONS RELATIVES A L'UTILISATION/NOTAS SOBRE EL USO


• Avoid high temperatures
Allow for sufficient heat dispersion when installed on a rack.
• Eviter des temperatures élevées
Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère
• Evite altas temperaturas
Permita la suficiente dispersion del calor cuando esta instalado en la consola
• Handle the power cord carefully
Hold the plug when unplugging the cord.
• Manipuler le cordon d'alimentation avec précaution
Tenir la prise lors du débranchement du cordon
• Maneje el cordon de energia con cuidado.
Sostenga el enchufe cuando desconecte el cordon de energia.
• Keep the set free from moisture, water, and dust.
• Protéger l'appareil contre l'humidité, l'eau et la poussière
• Mantenga el equipo libre de humedad, agua y polvo.
• Unplug the power cord when not using the set for long periods of time
• Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.
• Desconecte el cordon de energia cuando no utilice el equipo por mucho tiempo.
*(For sets with ventilation holes)
• Do not obstruct the ventilation holes.
• Ne pas obstruer les trous d'aération
• No obstruya los orificios de ventilacion
• Do not let foreign objects in the set.
• Ne pas laisser des objets étrangers dans l'appareil
• No deje objetos extraños dentro del equipo.
• Do not let insecticides, benzene, and thinner come in contact with the set.
• Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil
• No permita el contacto de insecticidas, gasolina y diluventes con el equipo
• Never disassemble or modify the set in any way.
• Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre.
• Nunca desarme o modifique el equipo de ninguna manera.

- **Line Voltage Selection (for multiple voltage model only)**
  - The desired voltage may be set with the VOLTAGE SELECTOR knob on the rear panel, using a screwdriver.
  - Do not twist the VOLTAGE SELECTOR knob with excessive force as this may cause damage.
  - If the VOLTAGE SELECTOR knob does not turn smoothly, please contact a qualified serviceman.



- **NUR FÜR EUROPÄISCHE MODELLE**

Konformitätserklärung

Die DENON Electronic GmbH
Halskestraße 32
40880 Ratingen

Erklärt als Hersteller/Importeur, daß das in dieser Bedienungsanleitung beschriebene Gerät den Technischen Vorschriften für Ton- und Fernseh-Rundfunkempfänger nach der Amtsblattverfügung 868/1989 (Amtsblatt des Bundesministers für Post und Telekommunikation vom 31. 8. 1989) entspricht.

Thank you for purchasing the DENON compact disc player. Read the Operating Instructions thoroughly, and operate this player properly.

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In addition to the CD Player unit, please check to make sure the following items are included in the packing box.

(1) Operating Instructions 1
(2) Connection Cords 1
(3) Remote Control Unit RC-239 (DCM-560) 1
RC-246 (DCM-460) 1
(4) R6P (AA size) Dry batteries (RC-239) 2
R03 (AAA size) Dry batteries (RC-246) 2

IMPORTANT
(CANADIAN MODEL ONLY)

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus setout in the Radio Interference Regulations of the Canadian Department of Communication.

FEATURES

The DCM-560 and DCM-460 are CD players equipped with DENON's unique A.S.L.C (Advanced Super Linear Converter) for eliminating sound quality deterioration in the PCM playback system in order to faithfully recreate the sound field of live halls or studios where compact discs are recorded. These models use carefully selected parts to provide high performance and sound field recreation with rich musical expression.

(1) **Ultimate signal reproduction using a newly developed ALPHA processor**
1. High speed interpolation by the newly developed ALPHA processor recreates the data below the LSB (least significant bit) lost upon recording to provide smooth waveform reproduction.
2. The original signals, including such unusual waveforms as impulse response, can also be reproduced with no ringing.
3. The effects of ALPHA processing are particularly noticeable at low levels, such as when music gently fades out or gradually emerges from total silence.

(2) **Advanced Super Linear Converter**
The use of DENON's unique system for preventing zero cross distortion, the main cause of deterioration of the sound quality in the PCM playback system, provides for sound field recreation with rich musical expression.

(3) **High performance digital filter**
The DCM-560/460 uses high precision 20-bit 8-times oversampling digital filters.

(4) **Programming of up to 20 tracks**
All of the tracks on a CD can be programmed to play in any order. Programming in units of discs (all tracks on a disc) is also possible.

(5) **Newly developed carousel-type changer mechanism included**
This mechanism can house five discs, and while one disc is playing the remaining four discs can be changed. In addition, the carousel can be rotated either clockwise or counterclockwise, so searching between discs is fast.

(6) **Wireless Remote Control Accessory**
In addition to general operations such as Play, Stop and Pause, this remote control unit enables direct selection, direct programming, and other functions. Use of the remote control unit adds greatly to the operating ease of the DCM-560/460, enhancing its outstanding features.

(7) **Favorite Track File (F.T. FILE)**
This function stores your favorite tracks for each of the discs. Using a deletion method, this function deletes up to 6 tracks on 1 disc, providing storage for up to 100 discs. Storage is retained even after the power is switched off.

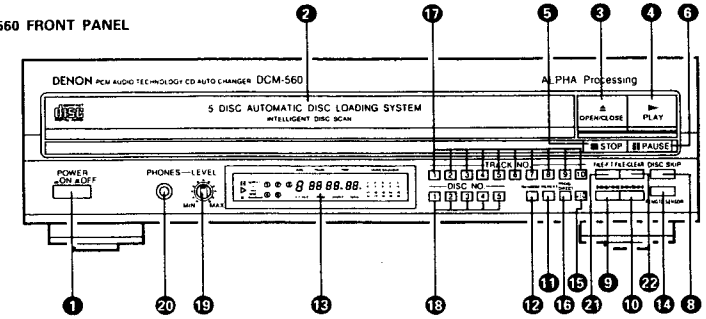
(8) **Synchronized Recording Function**
Connect the SYNCHRO jack with a DENON cassette deck which is equipped with a SYNCHRO jack, then make a synchronized recording.

CAUTIONS DURING USE

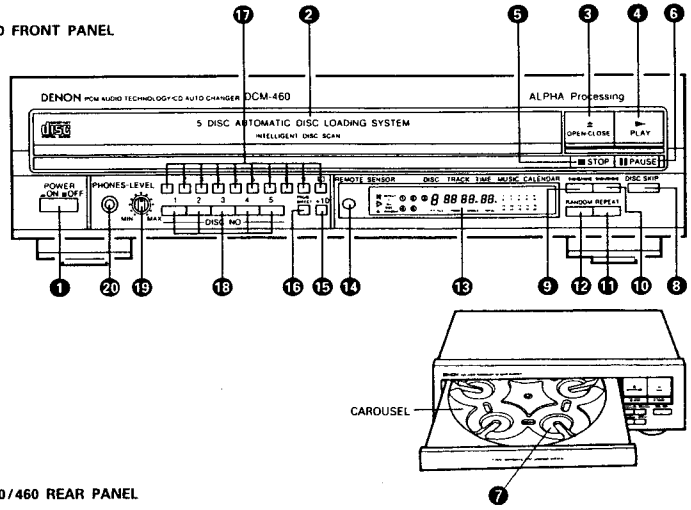
- This compact disc player is capable of playing discs which have the mark at right.
- During track selection, during search and when the player sustains a strong impact, the disc's rotational speed changes greatly, causing a small noise to be emitted. This is not a malfunction of the player.
- If the CD player is operated while an FM or AM broadcast is being received, there may be noise in the FM or AM reception. Please switch the power to the CD player off at such times.
- The DCM-560/460 has a broad dynamic range. Please exercise caution when turning up the volume on the amplifier in cases when the playback volume is low. If the volume is turned up too high, it could damage the speakers.
- Do not use any discs but exclusive audio discs with this CD player.
- Placing this player or its connection cords near a TV or other audio device could cause a humming sound to be emitted. If this occurs, relocate the player or reroute the connection cords.
- Be sure to remove the disc from the player before moving it. The disc could be damaged if left in the player while it is being moved.
- Do not place any object in the tray in the position where the disc is loaded, or open and close the tray with anything inside. Foreign objects in the tray could damage the play mechanism.
- Do not move the player from a cold place to a warm place suddenly. If the player is cold when brought into a warm room, condensation could form, preventing proper operation of the player. If condensation does form on the player when it is brought into a warm room, wait at least 30 minutes before use.

NAMES OF PARTS AND THEIR FUNCTIONS

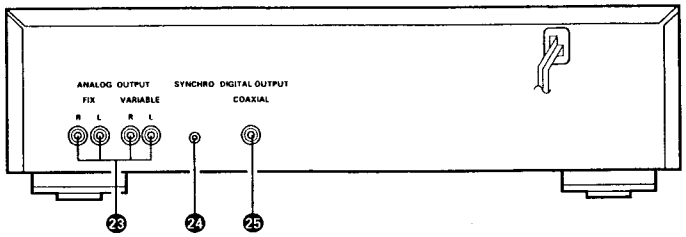
DCM-560 FRONT PANEL



DCM-460 FRONT PANEL



DCM-560/460 REAR PANEL



❶ Power Switch (POWER)
- Press this button to switch on the power.
- When the power is turned off, the unit is set to the standby mode.
  If the power is turned off during playback or while the disc information is displayed on the time display, several seconds after the power is turned back on, the number of the disc appears on the disc number display, the total number of tracks on that disc is displayed on the track number display, and the total time is displayed on the time display, and approximately 1 second later playback starts.

❷ Loading drawer
- Discs can be loaded and unloaded when this drawer is open. Do not force the drawer closed by hand.

❸ Open/Close Button (▲ OPEN/CLOSE)
- Press this button when opening.
- The drawer is opened toward the front.
- Press the button again to close the drawer.

❹ Play Button (▶ PLAY)
- Press this button to play a disc.
  The [▶] indicator lights up when the button is pressed, the number of the disc and the track being played is displayed by the Disc Number and Track No. indicator, and the amount of elapsed time for the current track is displayed by the Time indicator.
- The [▶] indicator goes off after playing of the final track of the final disc is finished and the player stops.

❺ Stop Button (■ STOP)
- Press this button to stop play.

❻ Pause Button (II PAUSE)
- Press this button to stop play temporarily.
- Pressing the Pause button during play stops play temporarily. The [▶] indicator goes off and the [II] indicator lights up.
- To cancel the Pause state, press either the Play button ❹ or press the Pause button ❻ a second time.

❼ Disc trays (1 ~ 5)
- One disc per tray can be loaded.

❽ Disc skip button (DISC SKIP)
- Each time this button is pressed, the carousel will rotate in a clockwise direction to the next tray position. This allows for loading or unloading of discs.
  This button is also used to select the next disc, in the normal play continuously.

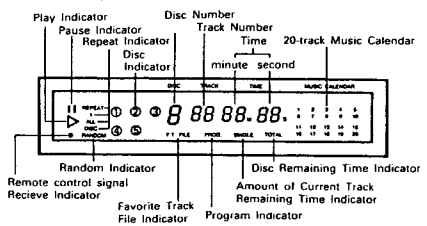
❾ Automatic/Manual Search Reverse Button (⏮ / ◀◀)
- Press this button to return the pickup to the beginning of the present track. Press again to return to other tracks.
- By pressing the button a number of times, the pickup will move back the corresponding number of tracks.
- Keep on pressing this button for more than 0.5 seconds during playback for fast reverse search. As long as the button is kept pressed, music signals are played back faster than normal.
- Keep on pressing this button for more than 0.5 seconds when the pause mode is engaged, you can quickly reverse the pickup to a desired position, three times faster compared to manual reverse search during playback. During this time, no sound is heard.

❿ Automatic/Manual Search Forward Button (▶▶ / ⏭)
- Press this button to move the pickup forward to the beginning of the next track. Press again to move ahead to other tracks.
- By pressing the button a number of times, the pickup will advance the corresponding number of tracks.
- Keep on pressing this button for more than 0.5 seconds during playback for fast forward search. As long as the button is kept pressed, music signals are played back faster than normal.
- Keep on pressing this button for more than 0.5 seconds when the pause mode is engaged, you can quickly forward the pickup to a desired position, three times faster compared to manual forward search during playback. During this time, no sound is heard.

⓫ Repeat Button (REPEAT)
- Press this button for repeated playback. The [REPEAT] indicator appears on the display. The following three types of repeat modes are available:
- When pressed once, the [REPEAT] and [1] indicators light and the track currently playing is repeated.
- When pressed again, the [REPEAT] and [1 DISC] indicators light and all the tracks on the disc currently playing are repeated.
- When pressed again, the [REPEAT] and [ALL DISC] indicators light and all the discs currently set on the tray are repeated.
- When pressed again, the [REPEAT] and [ALL DISC] indicators turn off and the repeat mode is cancelled. The repeat function can also be used during programmed and random playback, but in this case only the all repeat ([ALL DISC] indicator) modes are available. (Refer to Page 12 item ❻.)

⓬ Random Button (RANDOM)
- Press this button to begin random play.
- Pressing this button during stop, and press play button play to full automatic random play.
- Pressing this button during playing of a program starts random play of the tracks in the program. (See page 12, item ❷.)

⓭ Display Window
- The Disc No., Track No., playing time and other information are displayed in the display window.



⑭ **Remote Control Receptor (REMOTE SENSOR)**
- This receptor receives infrared signals from the wireless remote control unit.
- Aim the wireless remote control unit at this receptor window when operating it.

⑮ **+10 Button (+10)**
- Press this button when selecting a track with a number greater than 11.
  Use this button in combination with the number buttons ⑰. For example, when selecting track number 15, press [+10], then [5].
  To select track number 32, press [+10], [+10], [+10], then [2].

⑯ **Program/Direct Button (PROG/DIRECT)**
- Pressing this button selects between program memory and direct track selection.

⑰ **Track Number Buttons (1 ~ 10)**
- Press these buttons when making direct track selections or when entering tracks in program memory.
  For example, when making a direct track selection, press the [3] button when desiring to play track 3. The player will then begin playing track 3. When desiring to play track 12, press [+10], then [2]. When making a program, press the Program/Direct button ⑯ to enter the Program Mode.

⑱ **Disc Number Buttons (DISC NO.) (1 ~ 5)**
- Press these buttons to specify which disc you want to play.

⑲ **Volume Adjustment Knob (LEVEL)**
- Use this knob to adjust the output level (volume) for the headphones.
- Use this knob to adjust the output level (volume) for the headphones and line output (VARIABLE).
  (DCM-560 only)

⑳ **Headphone Jack (PHONES)**
- Insert the jack of the headphones when desiring to listen to a disc privately. (Headphones are sold separately.)

㉑ **Favorite Track File Button (F.T. FILE – FILE)**
(DCM-560 only)
- Press when switching to the F.T. file mode and when storing the program of the F.T. file to the file.
  (Refer to page 14, item ㉑.)

㉒ **Favorite Track File Clear Button (F.T. FILE – CLEAR)**
(DCM-560 only)
- Press to delete the program of the F.T. file which is stored in the file.
  (Refer to page 14, item ㉒.)

㉓ **Output Terminal**
- Connect the connection cords from these terminals to the amplifier's input terminals. (See page 8 for connections.)

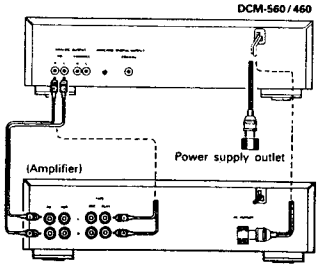
㉔ **SYNCHRO Jack (SYNCHRO)**
- To make a synchronized recording, this jack must be connected to the SYNCHRO jack of the deck with a connection cord. (See page 8 for connections.)

㉕ **Digital Output Jack (COAXIAL)**
- This jack outputs digital data.
- We recommend using a 75 Ω/ohm pin cord (available in stores) for connections. (See page 9 for connections.)

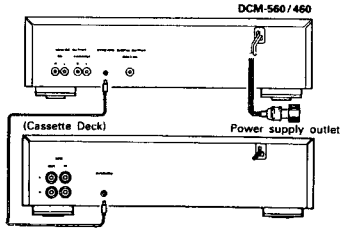
Note:
- Do not stop the carousel by hand when it is turning. If this is done, the microprocessor erroneously determines the disc number and the disc can be damaged.

CONNECTIONS

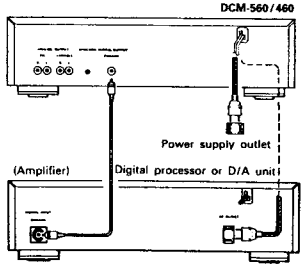
(1) Connecting the Output Terminal
- Connect one end of the connection cord supplied with the CD Player to the output terminals, left (L) and right (R) of the CD Player, and the other end to the CD, AUX or TAPE PLAY input terminals, left (L) and right (R), of the amplifier.



(2) SYNCHRO Jack Connections
Connect the SYNCHRO jack with a DENON cassette deck which is equipped with a SYNCHRO jack, then make a synchronized recording. Use the connection cord supplied with the cassette deck.
To make use of this function, also connect the output jacks and make the settings so that a recording can be made from the CD player to the cassette deck.



(3) Connecting the Digital Output Jack (COAXIAL)
Use a 75 Ω/ohm pin cord to connect the digital output jack (COAXIAL) of the DCM-560/460 to the digital input jack (COAXIAL) on a digital processor or D/A unit, available in stores.



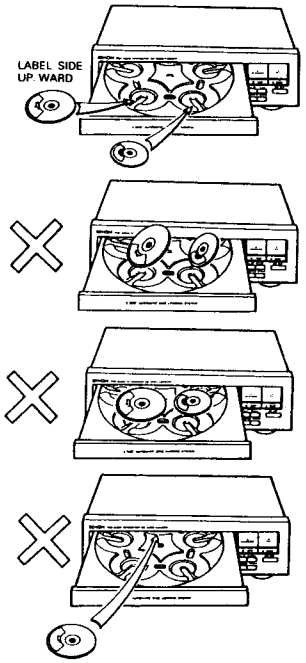
Connection Precautions
- Before proceeding with connections or disconnections of cables and power cords, be sure to turn all system components off.
- Ensure that all cables are connected properly to the L (left) and R (right) jacks.
- Insert plugs fully into the terminals.
- Connect the output jacks to the amplifier CD, AUX or TAPE PLAY input jacks.

OPENING AND CLOSING THE DRAWER AND LOADING A DISC

Opening and closing the drawer (This operation only works while the power is on.)
1. Press the power switch (POWER) to turn on the power.
2. Press the open/close button (⏏ OPEN/CLOSE).

How to load a disc
- Make sure the drawer is completely open.
- Hold the disc by the edges and place it on the disc tray. (Do not touch the signal surface, i.e., the glossy side.)
- Set the disc properly in the tray according to its size.
  Set 8cm discs in the center hole.
  Set 12cm discs in the outer hole.
- When the drawer is opened during the stop mode, discs can be loaded in the disc 1 to disc 4 trays. If the DISC SKIP button is pressed, the carousel turns and a disc can be loaded in the disc 5 tray.
  When the drawer is opened during the play mode, it is possible to load and unload discs in all of the disc trays other than the one whose disc is currently playing. In this case, the DISC SKIP button will not operate.
- Press the open/close button (⏏ OPEN/CLOSE) to close the drawer.

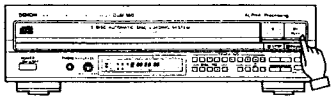
Caution:
- The player will not operate properly and the disc may even be damaged if it is not set correctly.
- If your finger should get caught in the drawer when it closes, press the open/close button (⏏ OPEN/CLOSE).
- Do not place any foreign objects on the disc tray, and do not place more than one disc on the tray at a time. Otherwise malfunction may occur.
- Do not push in the disc tray manually when the power is off as this may cause malfunction and damage the CD player.
- Do not touch the carousel while it is turning. Also, do not turn the carousel by hand when it is stopped. Doing so could damage it.
- Do not insert disc where indicated by arrow.
  This could damage the internal mechanism in the unit.



NORMAL PLAY

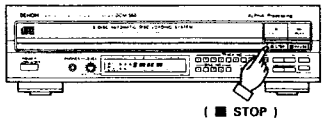
Follow the steps below to get an understanding of the disc play procedure.

(1) Starting Playback



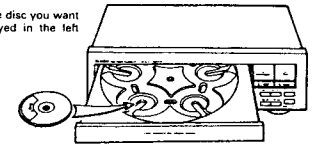
1. Turn the power switch on and press the open/close (⏏ OPEN/CLOSE) button to open the drawer.
2. Set the disc to be played in the tray on left side.
3. Press the play button (▶).
4. The drawer closes and the disc just loaded is played.
5. The disc number, track number and elapsed time, etc., for the disc currently playing appear on the display window.
6. If the open/close (⏏ OPEN/CLOSE) button is pressed while a disc is playing, playback continues, but the drawer opens and four discs can be replaced.
   Press the open/close (⏏ OPEN/CLOSE) button again to close the drawer.

(2) Stopping Playback



1. Press the stop button (■) to stop playback.
2. To replace discs, press the open/close (⏏ OPEN/CLOSE) button. The disc which was playing switches over to the left side and the drawer opens.

- Set the disc you want to played in the left side.

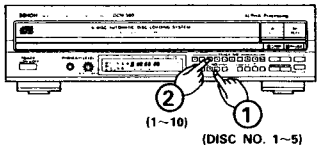


OTHER PLAY METHODS

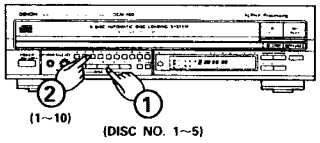
In addition to normal play, the following methods can be used when playing a disc.

❶ To Play the Desired Disc and Desired Track ..... Direct Selection

DCM-560



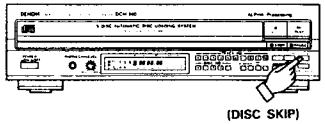
DCM-460



1 Press the button for the number of the desired disc (1 to 5).
2 Next, press the number of the desired track (1 to 10 and +10 buttons).

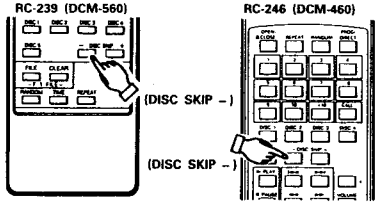
- Input the number of the track you would like to play with the Track Number buttons. If you would like to play the 4th track on the 3rd disc, press [3] for the Disc Number, then [4] for the Track Number. If you would like to play the 12th track on the 5th disc, press [5] for the Disc Number and [+10] and [2] for the Track Number. Play will begin from the number of the disc and the track input.

❷ To Move to the Next Disc During Playback ..... Disc Skip



1 Press the disc skip button. The carousel in the drawer turns and the disc on the next tray is played.
For example, if disc number 3 was playing, the disc switches to disc number 4, and if disc number 5 was playing, the disc switches to disc number 1.
2 In addition, when the Disc Skip – button on the remote control unit is pressed, the carousel turns in the opposite direction and the previous disc is played.

RC-239 (DCM-560) RC-246 (DCM-460)

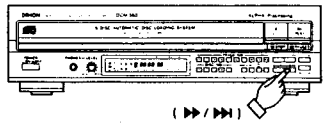


❸ To Move to the Next Track during Play ..... Automatic Search

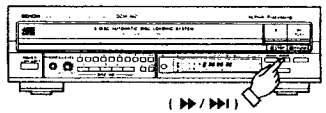
Press the Automatic/Manual search forward button (▶▶ / ▶▶|) for less than 0.5 seconds during playback.

- The pickup will advance to the beginning of the next track and playback will continue. Pressing the button several times will forward the pickup the corresponding number tracks.

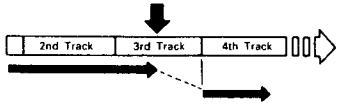
DCM-560



DCM-460



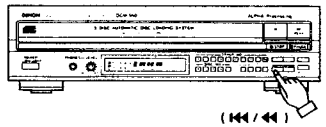
Press the ▶▶ / ▶▶| button



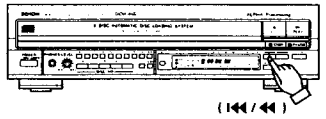
- During Random or Program operation, player moves to the beginning of the next random or program track selection.

❹ To return to the beginning of the track now being played ..... Automatic Search

DCM-560



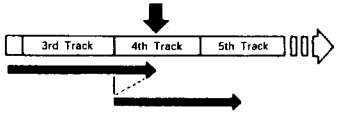
DCM-460



Press the Automatic/Manual search reverse button (|◀◀ / ◀◀) for less than 0.5 seconds during playback.

- The pickup will return to the beginning of the current track and playback will continue. Pressing the button several times will return the pickup the corresponding number tracks.

Press the |◀◀ / ◀◀ button

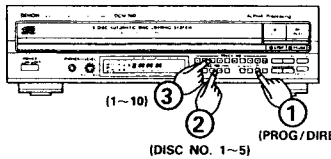


❺ To Play the Desired Discs and the Desired Tracks in the Desired Order ..... Program Selection

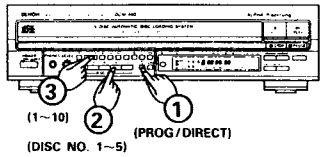
- You can play certain tracks on the loaded discs in any order.
- Tracks on a disc not loaded can also be programmed, but if you try to play that disc, the microprocessor detects that it is not loaded and the following disc is played automatically.
- Up to 20 tracks can be set in a program.
- A program can be made for a single entire disc.

(1) Programming

DCM-560



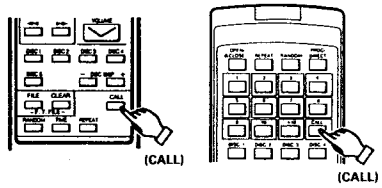
DCM-460



- Pressing the Program (PROG/DIRECT) button causes the Program indicator to light up. Select the disc, track in the program using the Disc Number buttons and the Track Number buttons and [+10] button. For example, if you would like to hear the 3rd track of the 2nd disc and the 12th track of the 5th disc, press [PROG/DIRECT], Disc Number [2], Track Number [3], Disc Number [5], then Track Number [+10], [2]. It is not necessary to specify the disc if all the tracks in the program are from the same disc.
  If all the tracks are being selected from the same disc, all the tracks on a particular disc can be played, such as from the 1st track of the 3rd disc, all tracks of the 5th disc and the 5th track of the 5th disc.
  In this case, press [PROG/DIRECT], Disc Number [3], Track Number [1], Disc Number [5], then Disc Number [5], Track Number [5].

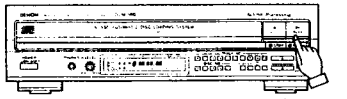
(2) To Check the Programmed Tracks (Remote contorol only)

RC-239 (DCM-560) RC-246 (DCM-460)

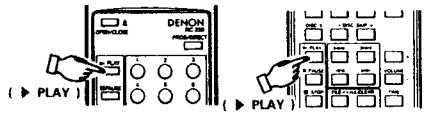


- Press the call button on the wireless remote control unit. The contents of the program are displayed in order one item at a time each time the Call button is pressed.

(3) To Play a Program



RC-239 (DCM-560) RC-246 (DCM-460)



- Press the Play (▶ PLAY) button to play the programmed selections in the order in which they were programmed.

(4) To clear the entire program

- Pressing the PROG/DIRECT button once more erases the entire program. Pressing the open/close (⏏ OPEN/CLOSE) button also erases the contents of a program.
- Pressing the PROG/DIRECT button while a program is being played cancels the program. Play will then be continuous to the end of the disc currently being played, after which the player will stop automatically.

Cautions

- If a program is run during playing of a track or from the Pause state, the track which is currently being played becomes the 1st track in the program.
- Additional tracks can be added to the program, but the player will not display the number of tracks in the program or the playing time.
- Direct selection cannot be done while a program is being played. Inputting the track number of a desired track with the Track Number buttons adds the input track to the end of the program.
- When programming, do not program a track number which is not recorded on the disc. If such a number is programmed by mistake, the player ignore the program.

❻ To Repeat Play of All Tracks ..... Repeat Play

- Press the Repeat (REPEAT) button. The REPEAT indicator will light up.
- Steps ① and ② can be done in any order, with the same results.

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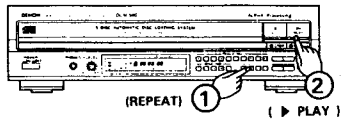
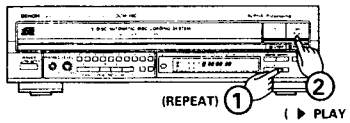
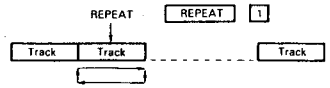


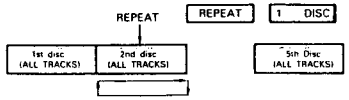
DCM-460



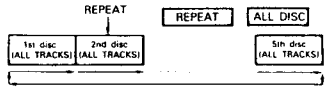
- When the repeat button is pressed once, the REPEAT and 1 indicators light. In this mode, the track currently playing is repeated.



- If the repeat button is pressed again, the REPEAT and 1 DISC indicators light, and the disc currently playing is repeated.



- If the repeat button is pressed again, the REPEAT and ALL DISC indicators light, and all the discs currently loaded are repeated.



- Pressing the Repeat (REPEAT) button during play will also cause the player to repeat play (of all tracks).
- To cancel repeat play, press the Repeat (REPEAT) button once more.
- Pressing the Repeat (REPEAT) button while a program is being played will cause the tracks in the program to be played again in order.
- Pressing the Repeat (REPEAT) button during Random play will cause the tracks to be played again at random.

❼ Letting the Player Select the Order of Play ..... Random Play

(1) Full Random Play

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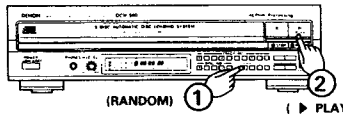
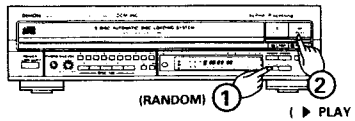


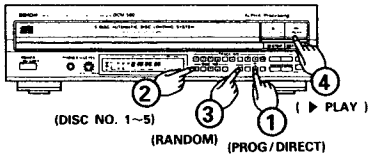
DCM-460



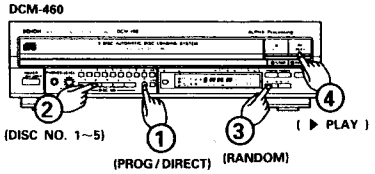
- Press the Random button, then press the Play button. The microcomputer will then start play of the tracks on the 5th disc at random.

(2) Program Random Play

DCM-560



DCM-460



- After pressing the PROG/DIRECT button and inputting a program (See item ❺ on page 11), press the Random button, then the Play button. The microcomputer will then select tracks from the program at random and play them.

(3) Disc Sequential Random Play

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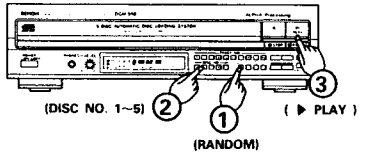
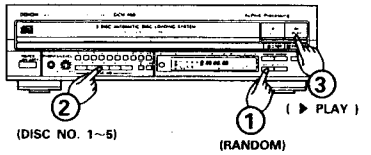


DCM-460



- Press the Random button. Next press the Disc Number buttons for the discs to be played, in the desired order, then press the Play button. The microcomputer will then select tracks from the specified discs to be played at random, in the order in which the discs were selected.
  Up to 5 discs can be selected, and the same disc can be selected, two or more times. Disc sequential random play is cancelled when play ends.

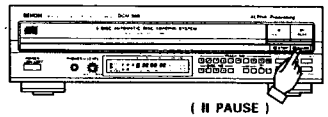
(4) To Cancel Random Play

- Pressing the Random button once more cancels the Random function. Play will then proceed from the track currently being played to the end of the last track on the disc, then stop. Pressing the open/close (⏏ OPEN/CLOSE) button also cancels the Random function.

Cautions

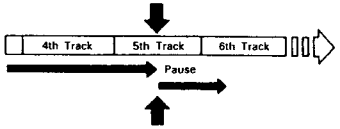
- Pressing the Random button during normal play starts full random play.
- Pressing the Random button during Program play starts random play of the tracks in the program, including the tracks which have already been played.
- During random play, the player may display the number of disc which is not loaded in the tray. In such a case, the player will read the disc information, then reset automatically to correct. This is not a malfunction.

❽ To Stop Play Temporarily ..... Pause



- Pressing the Pause button during play stops play at that point. Pressing the Pause button once more starts play again from the same point.

1 Press the Pause (PAUSE) button.



2 Press the Play (▶ PLAY) button or the Pause (II PAUSE) button.

* Press the Play (▶ PLAY) button or the Pause (II PAUSE) button to start play.

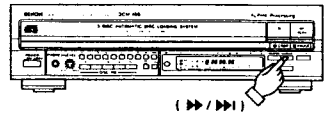
❾ Audible quick search ..... Manual Search

- Using this function, you can cue to a desired point within a track, either in the forward or reverse direction.
- Release the automatic/manual search button (⏮ / ◀◀ or ▶▶ / ⏭) when the desired point has been reached. Normal playback then continues.

(1) Manual Search Forward

DCM-560

DCM-460

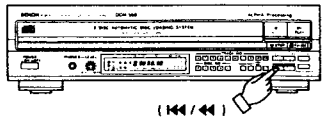


1. Keep on pressing the automatic/manual search forward button (▶▶ / ⏭) for more than 0.5 seconds during playback. Playback of the track is speed up.
- As a reference, the current track number and elapsed playback time within the track are displayed.

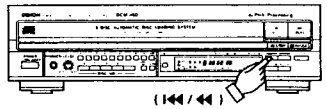
- *Manual search forward is approximately three times faster* when engaged during the pause state compared to playback. In this case, no sound is heard however.
- If the automatic/manual search forward button (▶▶ / ▶▶|) is kept pressed after the end of the final track on the disc is reached, (♪♪) is displayed and manual search stops. To return to another point, press the automatic/manual search reverse button (|◀◀ / ◀◀) until (♪♪) disappears.

(2) Manual Search in Reverse

DCM-560



DCM-460



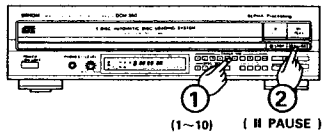
1. Keep on pressing the automatic/manual search reverse button (|◀◀ / ◀◀) for more than 0.5 seconds during playback. Reverse playback of the track is speed up.
- As a reference, the current track number and elapsed playback time within the track are displayed.
- Manual search in reverse is approximately three times faster when engaged during the pause state compared to playback. In this case, no sound is heard however.
- If the automatic/manual search reverse button (|◀◀ / ◀◀) is kept pressed after the beginning of the first track on the disc is reached, (♪♪) is displayed and manual search stops. To return to another point, press the automatic/manual search forward button (▶▶ / ▶▶|) until (♪♪) disappears.

⑩ To Cue and Stop Play ..... Pause

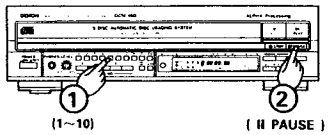
(1) Cuing by Direct Selection

- Cuing by direct selection, then entering the Pause state, is convenient for practicing vocals with background music.

DCM-560



DCM-460



1. Press the Track Number buttons to set the number of the desired track.
2. Press the Pause (II PAUSE) button.
- To start play, press the Play (▶ PLAY) button or the Pause (II PAUSE) button.

(2) Cueing by Program Selection

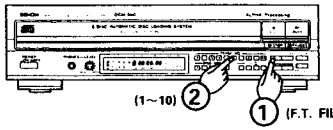
- After setting the desired track selections in a program, press the Pause (II PAUSE) button. The player will advance to the beginning of the 1st track in program memory and wait in the Pause state.

⑪ Stores your favorite tracks for each of the discs ..... Favorite Track File (F.T. FILE)

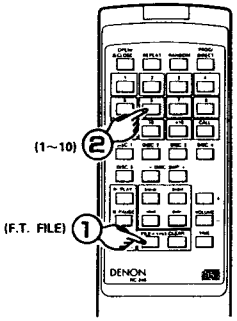
- Permits programming of the tracks you do not wish to listen to from among the tracks recorded on the disc, then skips these tracks when the disc is played.
- When these tracks are recorded to the file, the program is automatically called by setting the F.T. FILE mode, even after the disc has been changed and the power switched off.
- Up to 6 tracks can be programmed within 1 disc.
- Up to 100 discs can be recorded to file.
- The program contents are displayed on a calendar.

(1) Disc programming and recording to file

DCM-560



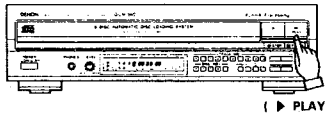
DCM-460 (Remote control only)



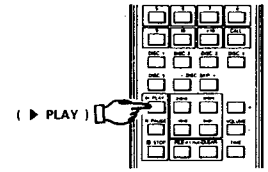
- Pressing the FILE button in the stopped condition will light up [F.T. FILE]. Select the tracks to be programmed using the Track Number button and the [+10] button.
  For example, to program the 3rd, 12th, and 7th tracks, press [FILE], [3], [+10], [2], and [7].
  Each time a track is specified, that track number is deleted in the calendar. The total number of tracks to be played is displayed under TRACK No. and the total play time is displayed under TIME.
- When recording the program to file, after selecting the program, press the FILE button. "FILE" will be displayed on the time display for about 1 second.

(2) Programmed Play

DCM-560



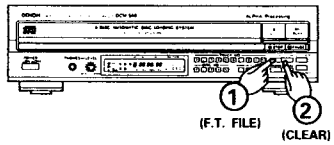
DCM-460 (Remote control only)



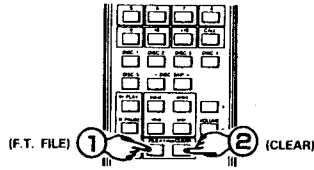
- Pressing the ▶ PLAY button will call the files for each of the discs to be played, then play the disc, skipping the programmed tracks.

(3) To delete the programs recorded to the file

DCM-560



DCM-460 (Remote control only)



- Press the FILE button and press the CLEAR button while "FILE" is being displayed on the time display.
  "CLER" will be displayed on the time display for about 1 second and the program of that disc will be deleted from the file.

(4) Contents of the F.T. File DCM-460 (Remote control only)

- Up to 100 discs can be recorded to the F.T. file.
  When 100 discs have been recorded, if a new disc is loaded, the program cannot be recorded by pressing the FILE button after track selection according to the operation of Step (1). This procedure will result in "FULL" being displayed on the time display for about 1 second.
  When the program of a new disc is recorded to the file, first delete the file that has already been recorded using the operation of Step (3).

(5) To Cancel the F.T. FILE Mode

DCM-460 (Remote control only)

- Pressing the program/direct button (PROG/DIRECT) and OPEN/CLOSE button cancels the F.T. FILE mode and sets the direct mode.

CAUTION

- Pressing the Number button and the [+10] button during play provides direct track selection.
- When track selection has not been made, all recorded tracks are played.
- Can be used only when the drawer is closed.
- The remaining time display of the track is limited to the 1st through 20th tracks of the disc.
- For discs with 21 or more tracks recorded, the total time at the time of programming and the program remaining time are not displayed.
- After the program track selection, changing to a separate disc before recording to the file will result in program cancellation.
- Program calling is not possible with the CALL button in the F.T. FILE mode.
- Random play is possible in the F.T. FILE mode. In this case, disc sequential random using the F.T. FILE is set.
- When in the random mode, the F.T. FILE mode cannot be set even when the FILE button is pressed. It is also not possible to store or erase files. Set the F.T. FILE mode, program, then press the RANDOM button.

⑫ Synchronized Recording Function ..... Synchronized Recording Function

Connecting the SYNCHRO jack with a DENON cassette deck which is equipped with a SYNCHRO jack will allow synchronized recordings to be made.

- To use this function, be sure to connect the SYNCHRO jacks as well as the output terminal (LINE OUT). (See Page 8 for connections.) Then, insert a disc.
- With the CD player in the stop or pause condition, starting a synchronized recording at the cassette deck side will automatically cause the CD player to start playing. (This is synchronized play.)
- The remote control indicator of the display will blink during synchronized play.

NOTE

- Synchronized play is also possible in the program mode.
- The repeat mode is cancelled when synchronized play is started.
- Except for the STOP button and OPEN/CLOSE button, the buttons will not operate during synchronized play.
- For further details, see the owner's manual for the cassette deck that has been connected.
- In the play condition, even if you start a synchronized recording at the cassette deck side, CD player will not synchronize with the cassette deck and the cassette deck becomes synchronized pause condition.
  In this case push the STOP button of the cassette deck, set the CD player in the stop or pause condition and start a synchronized recording at the cassette deck side again.

INSTALLATION PRECAUTIONS

The CD player uses a microcomputer for controlling internal electronic circuits. In the event that the player is used while a near-by tuner or TV is turned on, although unlikely, interference could occur either in the sound from the tuner or the picture of the TV. To avoid this, please take the following precautions.

- Keep the CD player as far away from the tuner or TV set as possible.
- Keep the power cable and connecting cable of the CD player separate from the antenna wires of the tuner and TV.
- Interference is particular likely to occur when an indoor antenna or a 300 Ω/ohm feeder cable is used. Thus, use of an outdoor antenna and 75 Ω/ohm coaxial cable is strongly recommended.

300 Ω/ohm feeder cable

75 Ω/ohm coaxial cable

PLAY USING THE REMOTE CONTROL UNIT

The DCM-560/460 CD Player can be controlled from across the room using the accessory Remote Control Unit.

(1) Inserting the Dry Battery

1. Remove the cover on the back of the remote control unit.
   RC-239 (DCM-560) **RC-246 (DCM-460)**

2. Insert two R6P (AA size) batteries in the RC-239 (DCM-560), two R03 (AAA size) batteries in the RC-246 (DCM-460), following the indications on the battery compartment.

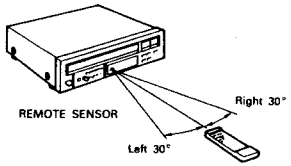
3. Replace the cover on the back of the remote control unit.

Cautions Concerning Dry Batteries

- Use R6P batteries in the RC-239 remote control unit, R03 batteries in the RC-246 remote control unit.
- Depending on the frequency of use, the dry batteries should be replaced approximately once per year.
- If the remote control unit fails to control the CD Player, even before a year has passed, replace the dry batteries with new ones.
- Be sure to follow polarity indications inside the case of the remote control unit, inserting the + end and – end of each battery in the directions indicated.
- Batteries may become damaged or leak under the following conditions.
  * Using new batteries together with old ones.
  * Using different types of batteries together.
  * Do not short batteries, take them apart, subject them to heat or throw them into a fire.
- When the remote control unit is not used for a long period of time, remove the dry batteries.
- If fluid leaks from the batteries, be sure to wipe up all battery fluid inside the battery case and replace the batteries with new ones.

(2) Using the Remote Control Unit

- Aim the remote control unit toward the light receptor in the front of the CD Player, as shown in the drawing below.
- The remote control unit can be used up to a distance of 8 meters in a straight line from the CD Player. However, this distance will be shortened if there is some obstruction between the remote control unit and the light receptor, or if the beam of light is slanted.

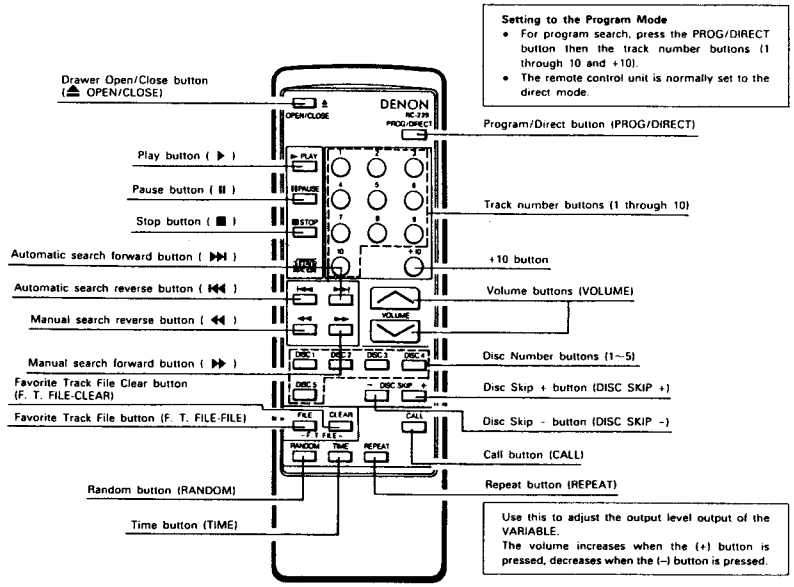


- The remote control unit has the same functions as the main unit, but the following operations cannot be done.
  1. Switching the power on and off.
  2. Adjusting headphone volume.

Cautions During Use

- Do not press the operating buttons on the main unit and the remote control unit at the same time. This could cause a malfunction.
- Operation of the remote control unit will be hindered if a strong light from the sun or a light fixture is shining on the REMOTE SENSOR, or if there is an obstruction between the remote control unit and the CD player unit.

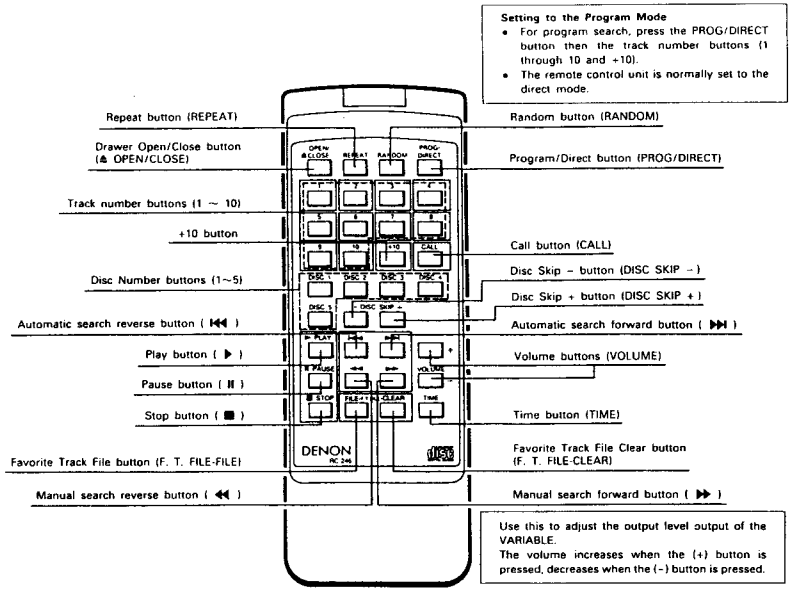
REMOTE CONTROL UNIT RC-239 (DCM-560)


Setting to the Program Mode
• For program search, press the PROG/DIRECT button then the track number buttons (1 through 10 and +10).
• The remote control unit is normally set to the direct mode.
Drawer Open/Close button (⏏ OPEN/CLOSE)
Program/Direct button (PROG/DIRECT)
Play button (▶)
Pause button (⏸)
Stop button (■)
Track number buttons (1 through 10)
Automatic search forward button (⏭)
+10 button
Automatic search reverse button (⏮)
Volume buttons (VOLUME)
Manual search reverse button (◀◀)
Manual search forward button (▶▶)
Disc Number buttons (1–5)
Favorite Track File Clear button (F. T. FILE-CLEAR)
Disc Skip + button (DISC SKIP +)
Favorite Track File button (F. T. FILE-FILE)
Disc Skip – button (DISC SKIP –)
Call button (CALL)
Random button (RANDOM)
Repeat button (REPEAT)
Time button (TIME)
Use this to adjust the output level output of the VARIABLE.
The volume increases when the (+) button is pressed, decreases when the (–) button is pressed.

- **Direct Selection**
  Normally, direct search is possible simply by pressing the desired number buttons.
- **Program Selection (During playback, the track which is currently playing is programmed as the 1st track.)**
  Press the PROG/DIRECT button, then press the number buttons.
  For example, to program tracks number 3, 11, and 5, press PROG/DIRECT → 3 → +10 and 1 → 5.
  To cancel the program, press the PROG/DIRECT button.
- **Skipping Discs**
  The Disc Skip button (DISC SKIP +, –) will not function in the random and program modes.
  During disc sequential random playback, when the Disc Skip + button is pressed, the following disc is played in random order.
- **Inputting the Track Numbers**
  For track numbers below 10, simply press the corresponding button. For track numbers of 11 and greater, press the +10 then the number buttons.
  For example, for track number 22 press +10 twice then 2.
- **Volume**
  The volume control on the unit will operate when the volume buttons are pressed. The volume can be checked by looking at the position of the control.

- The Time indicator indicates the amount of elapsed time for the track currently being played, the amount of time remaining for the current track and the amount of time remaining for all tracks yet to be played.
  Normally, the amount of elapsed time for the current track is displayed. Pressing this button once causes the [SINGLE] indicator to light up, displaying the amount of time remaining for the current track. Pressing the button once more turns the [SINGLE] indicator off and causes the [TOTAL] indicator to light up, displaying the time remaining for all tracks yet to be played on the disc. Pressing the button once again turns the [TOTAL] indicator off and causes the indicator to display the elapsed time for the current track.
- During playback, the total remaining time is the remaining time for the disc. For programmed playback, the remaining time for the program is only displayed when the programmed tracks are all on the same disc.
  In the case of 21st and subsequent tracks, the time remaining for one track is displayed "----". When 21st and subsequent tracks is programmed, the time remaining for all tracks is displayed "----".
  "----" is displayed when tracks on more than one disc are programmed.

REMOTE CONTROL UNIT RC-246 (DCM-460)


Setting to the Program Mode
• For program search, press the PROG/DIRECT button then the track number buttons (1 through 10 and +10).
• The remote control unit is normally set to the direct mode.
Repeat button (REPEAT)
Random button (RANDOM)
Drawer Open/Close button (⏏ OPEN/CLOSE)
Program/Direct button (PROG/DIRECT)
Track number buttons (1 ~ 10)
+10 button
Call button (CALL)
Disc Number buttons (1~5)
Disc Skip – button (DISC SKIP –)
Disc Skip + button (DISC SKIP +)
Automatic search reverse button (⏮)
Automatic search forward button (⏭)
Play button (▶)
Volume buttons (VOLUME)
Pause button (⏸)
Stop button (■)
Time button (TIME)
Favorite Track File button (F. T. FILE-FILE)
Favorite Track File Clear button (F. T. FILE-CLEAR)
Manual search reverse button (◀◀)
Manual search forward button (▶▶)
Use this to adjust the output level output of the VARIABLE.
The volume increases when the (+) button is pressed, decreases when the (–) button is pressed.

- **Direct Selection**
  Normally, direct search is possible simply by pressing the desired number buttons.
- **Program Selection (During playback, the track which is currently playing is programmed as the 1st track.)**
  Press the PROG/DIRECT button, then press the number buttons.
  For example, to program tracks number 3, 11, and 5, press PROG/DIRECT → 3 → +10 and 1 → 5.
  To cancel the program, press the PROG/DIRECT button.
- **Inputting the Track Numbers**
  For track numbers below 10, simply press the corresponding button. For track numbers of 11 and greater, press the +10 then the number buttons.
  For example, for track number 22 press +10 twice then 2.
- **Volume**
  The volume control on the unit will operate when the volume buttons are pressed. The volume can be checked by looking at the position of the control.

- **Skipping Discs**
  The Disc Skip button (DISC SKIP +, –) will not function in the random and program modes.
  During disc sequential random playback, when the Disc Skip + button is pressed, the following disc is played in random order.

- **Volume**
  The output level of the VARIABLE output terminal can be changed.
  When the volume button is pressed, " – " appears in the TIME M (minutes) section of the display window and the level appears in the S (seconds) section. The volume can be changed between a maximum of "0" and a minimum of "–50" in 50 steps, by approximately 1.5 dB per step.

- The Time indicator indicates the amount of elapsed time for the track currently being played, the amount of time remaining for the current track and the amount of time remaining for all tracks yet to be played.
  Normally, the amount of elapsed time for the current track is displayed. Pressing this button once causes the [SINGLE] indicator to light up, displaying the amount of time remaining for the current track. Pressing the button once more turns the [SINGLE] indicator off and causes the [TOTAL] indicator to light up, displaying the time remaining for all tracks yet to be played on the disc. Pressing the button once again turns the [TOTAL] indicator off and causes the indicator to display the elapsed time for the current track.
- During playback, the total remaining time is the remaining time for the disc. For programmed playback, the remaining time for the program is only displayed when the programmed tracks are all on the same disc.
  In the case of 21st and subsequent tracks, the time remaining for one track is displayed "----". When 21st and subsequent tracks is programmed, the time remaining for all tracks is displayed "----".
  "----" is displayed when tracks on more than one disc are programmed.

COMPACT DISCS

1. **Cautions in Handling Compact Discs**
   - Do not get fingerprints, oil, dirt or other substances on the compact disc. If the disc becomes dirty, wipe it off with a dry, soft cloth.
   - Do not clean compact discs with benzene, paint thinner, water, record spray, anti-static agent, silicon cloth or similar substances.
   - Take particular care to prevent scratches to the back side of the compact disc when removing it from the case and when inserting it in its case.
   - Do not bend compact discs.
   - Do not apply to compact discs.
   - Do not attempt to enlarge the center hole of the disc.
   - Do not write on the label (printed) side of the disc with a ball point pen or pencil.
   - Bringing a CD into a warm room from a cold place could cause moisture to condense on the disc surface. Do not attempt to dry the disc with a hair dryer, etc.
2. **Storage of Compact Discs**
   - After play, be sure to remove the disc from the player.
   - To prevent dust, scratches, deformation, etc., be sure to store compact discs in their case.
   - Do not store compact discs in the following locations.
     1. Places where direct sunlight strikes for long periods of time.
     2. Places with a high humidity or a lot of dust.
     3. Places reached by heat from a heater or similar appliance.

TROUBLE? CHECK THE PLAYER TO FIND WHAT'S WRONG

Even when it appears that there is trouble, check the following points carefully.

The drawer won't open / close when the Open / Close button is pressed.
- Is the Power switch on?

After a disc is loaded (0 00 00_M 00_S) is displayed in the display window.
- Is the disc loaded correctly? ..... See page 9, 10, 19.

Play does not begin when the Play button is pressed.
- Is the disc dirty or scratched? ..... See page 19.

There is no sound, or the sound is distorted.
- Is the output cord connected correctly to the amplifier? ..... See page 8.
- Does the sound return to normal when the amplifier's knobs are adjusted or the proper input device is selected?

The player won't go to the place specified in the search.
- Is the disc dirty or scratched? ..... See page 19.

A program cannot be played.
- Is the method used to make a program and run it correct? ..... See page 11.

The player won't operate correctly when the remote control unit is used.
- Are the dry batteries in the remote control unit dead? ..... See page 16.
- Is the remote control unit located too far from the CD Player unit? ..... See page 16.

SPECIFICATIONS

AUDIO	DCM-560	DCM-460
Number of Channels	2 Channels	
Frequency Characteristics	4 ~ 20,000 Hz	
Dynamic Range	100 dB	100 dB
S N Ratio	113 dB	110 dB
High Frequency Distortion	0.002% (1kHz)	0.0025%
Separation	102 dB (1kHz)	100 dB
Wow and Flutter	Less than the measuring (+0.001% W. peak)	
Output Voltage	2.0 V, Variable 0 ~ 2.0V	
DISC USED	Audio compact discs are used 12 cm (5 in) and 8 cm (3 in)	
OVERALL		
Power Supply	Show on rating label	
Power Consumption	Show on rating label	
External Dimensions	434 (W) x 114 (H) x 388 (D) mm (17-3/32" x 4-17/32" x 15-9/32")	
Weight	6.2 kg (13 lbs 13 oz)	5.7 kg (13 lbs)

FUNCTIONS AND DISPLAY	
Functions	Five discs can be used, Direct Track Selection, Program Selection, Random Play, etc.
Displays	Disc No., Track No., Time (min., sec.), Play, Pause, Repeat, Random, etc.
Other	Headphone Jack (Level Variable)
REMOTE CONTROL UNIT RC-239 (DCM-560)	
Remote Control Method	Infrared Pulse system
Power Supply	3 V DC Two R6P (standard SIZE AA)
External Dimensions	60 (W) x 177 (H) x 18 (D) mm (2-23/64" x 6-31/32" x 45/64")
Weight	100g (approx. 3 oz) (Includes batteries)
REMOTE CONTROL UNIT RC-246 (DCM-460)	
Remote Control Method	Infrared Pulse system
Power Supply	3 V DC Two R03 (standard SIZE AAA)
External Dimensions	60 (W) x 160 (H) x 16 (D) mm (2-23/64" x 6-19/64" x 5/8")
Weight	100g (approx. 3 oz) (Includes batteries)

* Design and specifications are subject to change without notice in the course of product improvement.

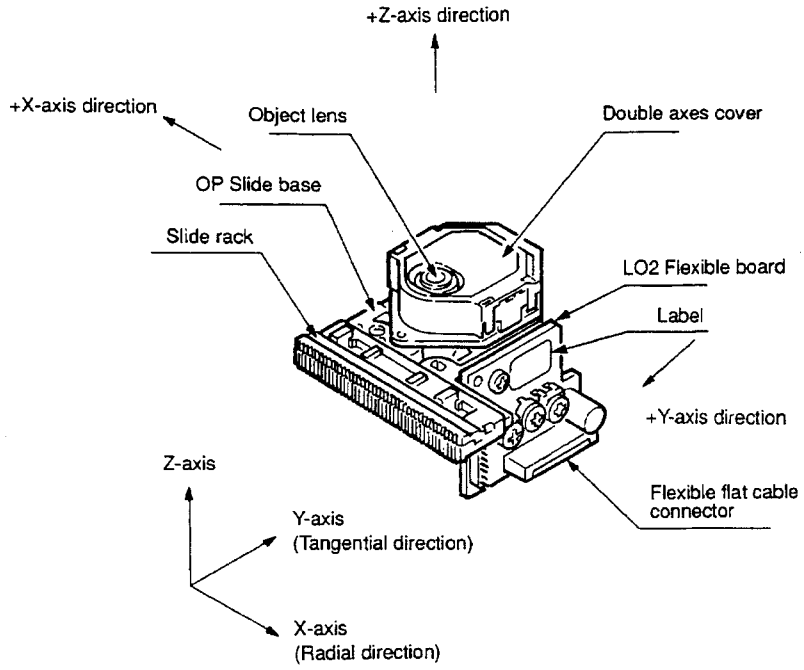
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSAETTELSE FOR STRÅLING.

VARO! AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

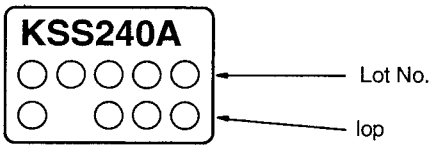
VARNING – OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD.
BETRAKTA EJ STRÅLEN.

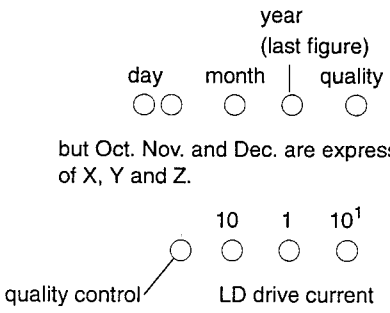
NOTE FOR HANDLING OF LASER PICK-UP

DESCRIPTION OF THE COMPONENTS



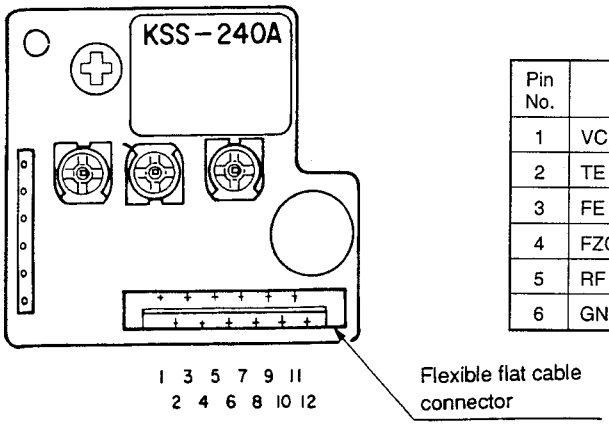
LABEL





The expressed unit is by mA, with omission of the decimal point as for example, 56.5mA will be expressed as 565, but the head of English letter means the control in the manufacturning plant.

PIN CONNECTOR



Pin No.	Description	Input/ Output	Pin No.	Description	Input/ Output
1	VC (+2.5V)	OUT	7	Vcc (+5V)	IN
2	TE (TRK ER signal)	OUT	8	LDC (LD Control)	IN
3	FE (FCS ER signal)	OUT	9	FCS+ (Double axes)	IN
4	FZC (FZC signal)	OUT	10	TRK+ (Double axes)	IN
5	RF (RF signal)	OUT	11	TRK– (Double axes)	IN
6	GND	IN	12	FCS– (Double axes)	IN

Caution for Handling the Laser Pick-up

The laser pick-up KSS-240A is assembled and precisely adjusted using a sophisticated manufacturing process in our plant. Do not disassemble or attempt to readjust it. Please keep the following instructions carefully in handling pick-up.

1. Handle with Care

(1) Storage
Do not store the pick-up in dusty, high-temperatured or high-humidity environments.

(2) Please take care for preventing from shock by falling down or careless handling.

2. Laser Diode (LD)

(1) Protect your eyes
The laser beam may damage the human eye, since the intensity of the focused spot may reach $7 \times 10^3 W/cm^2$ even if the intensity at the objective lens is 400 μW maximum. As the light beam spreads after focused through the objective lens, it does not effect you in the place as far as more than 30 cms. However, do not look at the laser light beam either through the objective lens directly nor another lens or a mirror.

(2) Poison of As
Since the LD chip contains As (Arsenic), as GaAs + GaAlAs, as known as the poison, although the poison is relatively weak, in comparing with others, e.g.As_2O_3, $AsCl_3$ etc., and the amount is small, avoid putting the chip in acid or an alkali solution, heating it over 200°C or putting it into your mouth.

(3) Avoid surge current or electrostatic discharge
The LD may be damaged or deteriorated by its own strong light if a large current is supplied to it, even if only a short pulse.
Make sure that there is no surge current in the LD driving circuit by switches or else. Be careful to handle pick-up as it may be damaged in a moment by human electrostatic discharge. The pins of the LD are short-circuitted by solder for protection during shipment.
For safety handling of an LD, grounding the human body, measuring equipments and jig is strongly recommended. And still it is further desirable to make use of mat on the platform and floor for handling the LD.
To open the short circuit, remove the soldering quickly with a soldering iron whose metal part is grounded.
The temperature of the soldering iron should be less than 320°C (30W).

3. Actuator

(1) The performance of the actuator may be effected if magnetic material is located nearby, since the actuator has a strong magnetic circuit. Do not permit dust to enter through the clearance of the cover.

(2) Cleaning the lens
It may change the specifications by attaching dust or ash on the objective lens. Clean the lens with a cleaning paper dampened with a little water, not pressing lens with so much strength by the cleaning paper.

4. Metal Bearing

As the metal bearing of Cu-compound sintered alloy is impregnated with FROIL946P (*Part No. 529 0054 007), never fail to supply the bushing with the same lubricant at the time of replacing the pick-up.

5. Handling

Please handle the laser pick-up with holding the side base (rosin molded part).

When either a part of human body or some other things may happen to touch directly with the circuit part of P.W.Board, it may cause deterioration, take careful attention in handling this base.

6. Deterioration

As KSS-240A comprises built-in RF Amp and APC curcuit, it resists stronger against external electrostatic damages than the former typed pickup. However, there is possibility of pickup distorioration in the following cases.

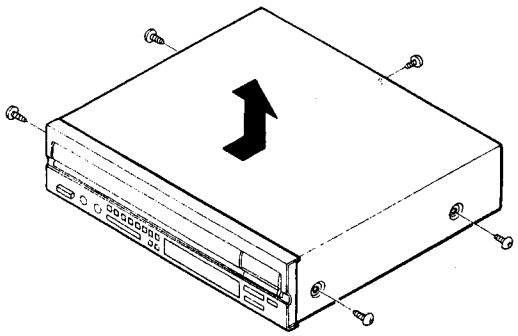
(1) Low HF level, or with great numbers of jitters.

(2) Tracking offset (EF Balance) is out of order (Refer to "Confirmation Method of Adjustment " for confirmation on (1) and (2)).

DISASSEMBLY

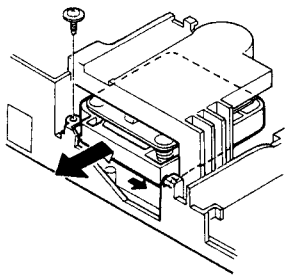
● **Top Cover**

Remove 4 screws from both sides and 1 screw from Rear Panel and slide Top Cover slightly background (approx. 5mm) and pull it up.



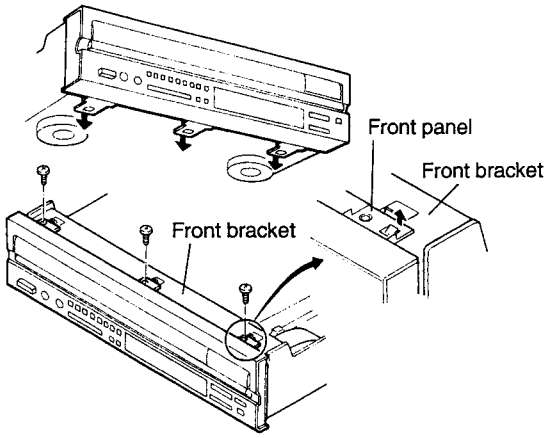
● **PU Mechanism**

After removing rear panel, remove 1 screw.



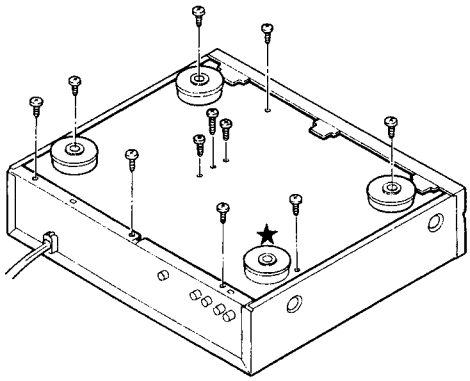
● **Front Panel**

1. Remove 3 hooks from bottom surface of unit.
2. Remove screws fixing front bracket and detach subpanel from hook of the front bracket.



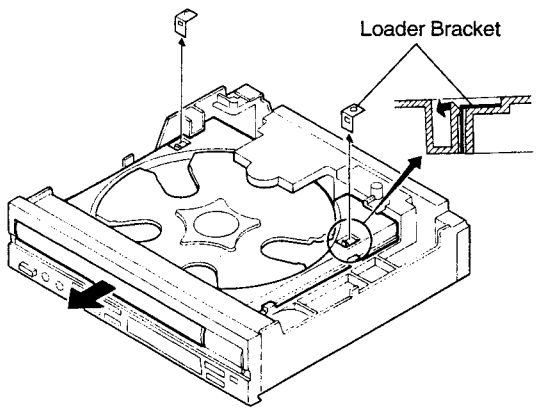
● **Bottom Cover**

1. Remove 3 screws fixing foot and 5 screw fixing bottom cover and 3 screws fixing rear panel, 10 in total.
(These screws are P-tight type)
Do not remove screws marked with ★.
(This screw is S-tight type)

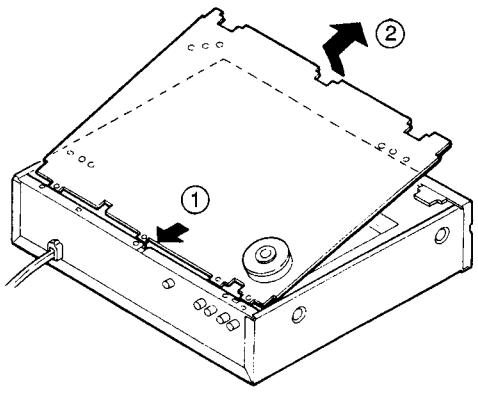


● **Loader Frame Ass'y**

1. Remove hooks of loader frame, and pull out 2 loader brackets from right and left sides.
2. Pull the loader frame assembly frontward.



2. ① Slide the bottom cover backward (approx. 5mm) and when it touches the rear panel in end, ② lift up front portion of the bottom cover and pull it.



ADJUSTMENT

Microcomputer built in the unit, comprises service program to facilitate servo adjustment by pushing operation button.

1. Start service program

(1) Turn power switch OFF.

(2) Shortcircuit ④ pin (SWOP) and ③ pin (SWCL) of TP102 on P.W.B. (Main Unit)
(Caution) Do not touch other pins.

(3) Turn power switch ON.
(Service program starts, and displays track number 01)

(Caution)

- When service program started normal operation of buttons will be defeated.

2. Service program function

• Make sure a disc has been loaded in the NO.1 disc tray.

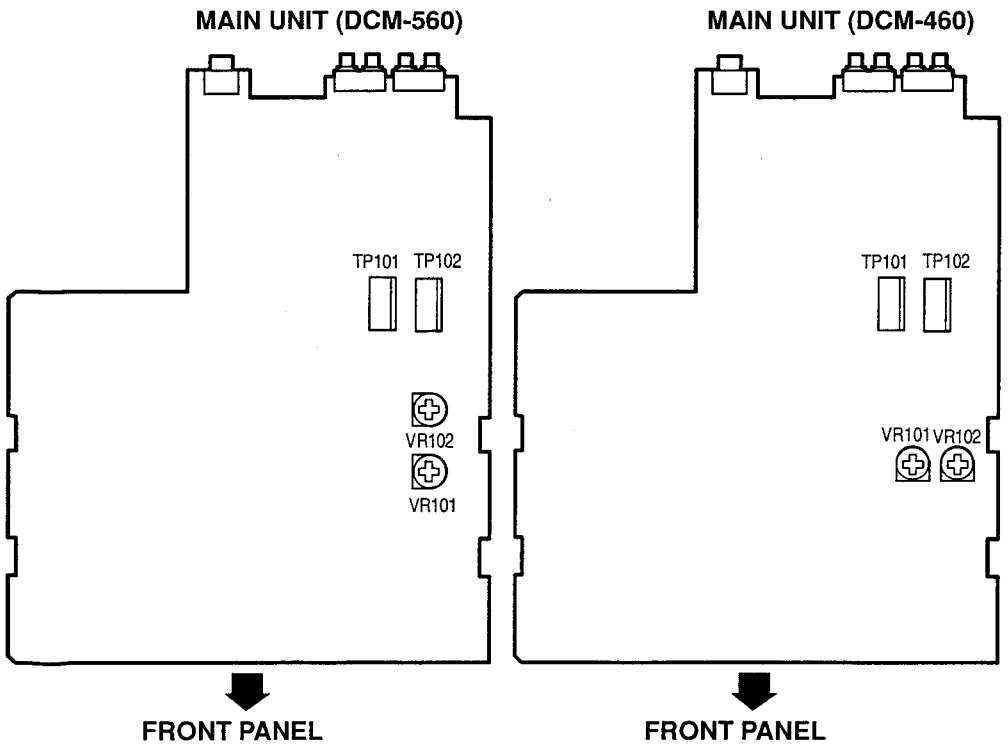
Button	Function	Description
⏏ OPEN/CLOSE	Opens or closes the disc holder.	● Opens or closes only when disc is stopped. ● Operate other keys after open or close.
■ STOP	Stops system function.	● Displays track number 01. ● Push when adjustment completed, or do it again.
▶ PLAY	Starts focus servo and disc turns.	● Push when adjust tracking offset. ● When completed, displays track number 02.
⏸ PAUSE	Starts focus servo, tracking servo, slide servo, spindle servo.	● When PAUSE button is pushed, starts tracking servo and slide servo. ● When completed, track number 03.
Other button	No normal operation.	● Do not operate buttons other than above. ● If misoperated, immediately turn power switch OFF.

(Caution)

- Do not use remote control during service program mode.

3. Adjustment

(1) Location



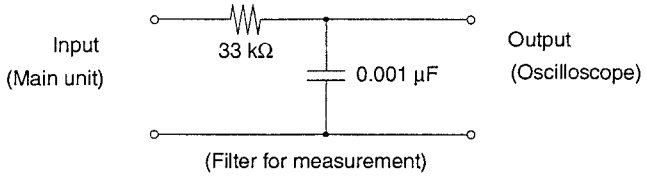
(Caution)

- When playing back in state of open top cover,there may be possibility of playback failure due to light entering into disc detection sensor. In such case, shield the light by hand or others so that the light does notcome into sensor.

TP101	TP102
⑥ TEI	⑥ +5V
⑤ VC	⑤ NC
④ FOK	④ SWOP
③ TEO	③ SWCL
② FEI	② GND
① FEO	① RF

(2) Necessary equipment for adjustment

1. Dual trace oscilloscope
2. Reference disc (CA-1094)
3. Oscillator (10 Hz ~ 10 kHz, 0 ~ 3 Vp-p)
4. Frequency counter (readable more than 5 KHz)
5. Filter for measurement

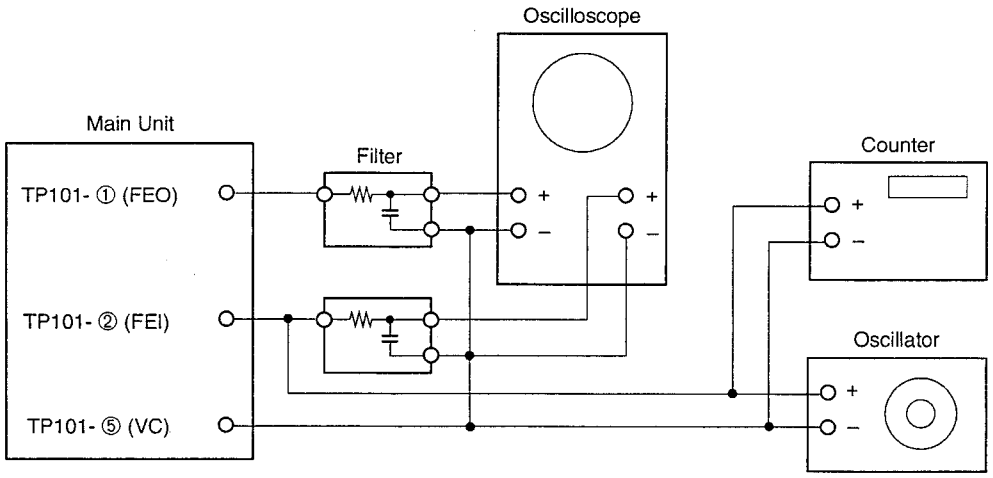


(3) Preset

1.	Start service program.	
2.	Preset VR101, 102 as per right figure.	VR101 (F-GAIN) W0J156 O'clck VR102 (F-GAIN) W0J156 O'clck
3.	Step.	1. Focus gain (VR101) 2. Tracking gain (VR102) 3. Tracking offset recheck 4. HF Level recheck

4. Focus gain

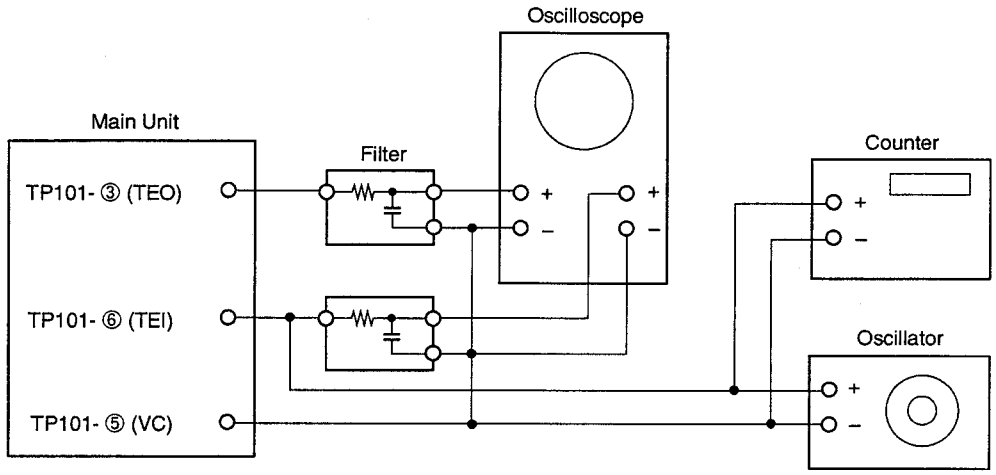
Connection



Oscillator	Counter	Oscilloscope V	Oscilloscope H	Adjust	Check	Step
				(Volume)	(Oscilloscope)	1. Push [II PAUSE]. (Displays track number 03)
930 Hz 2 Vp-p (±0.1 V)	930 Hz	● DC range ● X-Y mode		VR101	Y axis / X axis Phase 90° Waveform not right Y axis / X axis	2. Connect oscillator. 3. Set oscillator to 930 Hz/2 Vp-p. 4. Switch oscilloscope input to X-Y mode. 5. Adjust VR101 [F-GAIN] to symmetrize Lissajous figures to X-Y axes.

5. Tracking gain

Connection

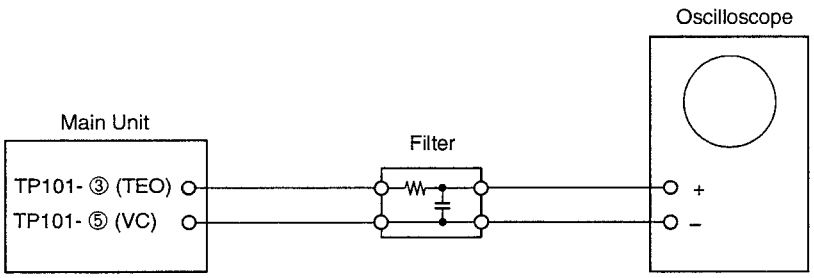


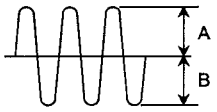
• Caution: Connect oscillator after [II PAUSE] pushed and servo function started.

Oscillator	Counter	Oscilloscope V	Oscilloscope H	Adjust	Check	Step
				(Volume)	(Oscilloscope)	1. Push [II PAUSE]. (Displays track number 03)
● 2.7 kHz (±120 Hz) ● 0.8 Vp-p (±0.1V)	2.7 kHz (±120 Hz)	● DC range ● X-Y mode		VR102	Y axis / X axis Phase 90° Waveform not right Y axis / X axis	2. Connect oscillator. 3. Set oscillator to 2.7 kHz/0.8 Vp-p. 4. Switch oscilloscope input to X-Y mode. 5. Adjust VR102 [T-GAIN] to symmetrize Lissajous figures to X-Y axes.

6. Tracking offset (E/F Balance)

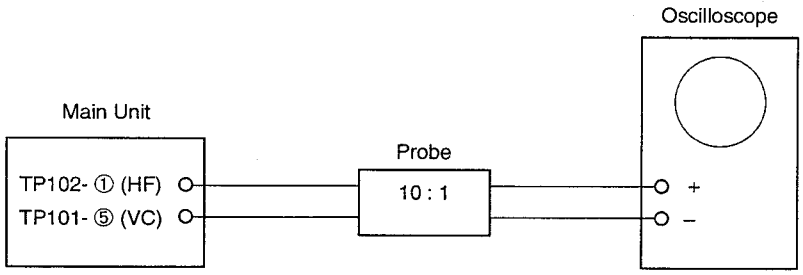
Connection

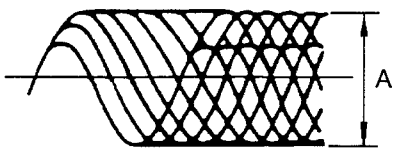
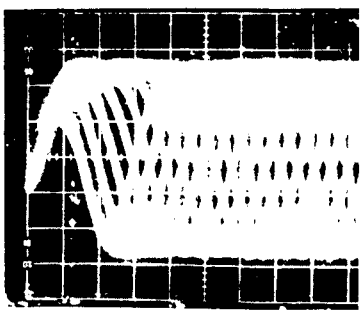


Osciloscope		Check	Step
V	H	(Oscilloscope)	
0.1v/div	1~2 ms/div	 $\frac{A-B}{A+B} < 20\%$	1. Push ⏏ OPEN/CLOSE and load disc holder referrence disk. 2. Push ⏏ OPEN/CLOSE and close disc holder. 3. Push ▶ PLAY to turn disc. (Displays track number 02) 4. Short (+)(–) of oscilloscope and check the base line. 5. Confirm that upper and lower amplitude of the waveform is symmetric against 0V.

7. HF level

Connection



Osciloscope		Check	Step
V	H	(Oscilloscope)	
50mv/div or 20mV/div	0.2μ/div or 0.5μ/div	 A=1.36±0.2Vp-p 	1. Push ⏸ PAUSE. (Displays track number 03) 2. Check HF level of oscilloscope. 3. Confirm that the waveform is in good shape. (◊ pattern in center must be able to discriminate clearly.)
• Set input mode to ALTERNATE or CHOPPER.			

HEAT RUN MODE FUNCTION

Heat Run Mode

1) To activate

While hold pushing PAUSE (▌▌), STOP (■), buttons simultaneously, turn the unit power on. The remote control sensor indicator will light to show that the unit is shifted in Heat Run mode.
Be sure to load the disc previously.
Press the disc holder open/close button (⏏ OPEN/CLOSE) to cancel Heat Run mode.

★ This mode functions only for a disc with 21 pieces of music or more. For a disc with 20 pieces of music or lesser, please do not use.

2) Operation

During the Heat Run mode to shift the unit in Play mode makes the unit replays from the first music after opens the loader once and re-closes it when finish playing the last track (comes into lead out).
Hereafter, operates open/close of loader, servo on, reading of TOC, and playing repeatedly, and repeats playing the two tracks; the first and the last ones.

3) Error Message

When the system error occurs while in Heat Run mode, the following error message will display on the Track No. indicator and stops operation.

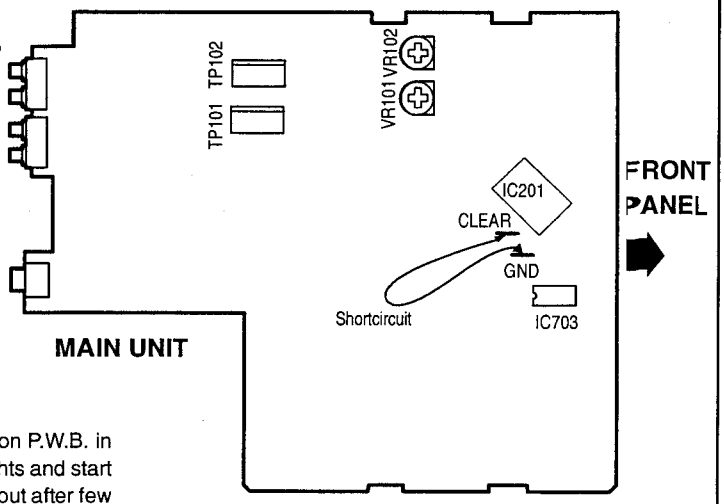
1. E1
   At the time of Focus Servo does not activate.
2. E2
   When unable to detect synchronous pattern however the disc is in rotating. (GFS does not drive.)
3. E3
   No synchronous pattern can be detected while in Play mode. (No GFS drives.)
4. E4
   When TOC is unreadable in despite of servo is activated.
5. E5
   In case of loader malfunctions. (Unable to turn on the switch.)
6. E6
   The inner circle switch of Pick-up does not turn off.
7. E7
   The inner circle switch of Pick-up does not turn on.
8. E10
   Improper function of Pick-up base UP/ DOWN.
9. E11
   Improper function of disc Select.

★ The number of operation up to the stop will be displayed on the minute and second portion of the indicator.

(Note)

Initalizing of IC703 (NM24C08)

* In case initializing is necessary due to replacement of IC703, initialize IC703 following to the undermentioned procedure.

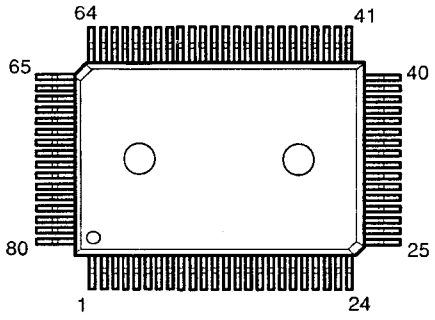


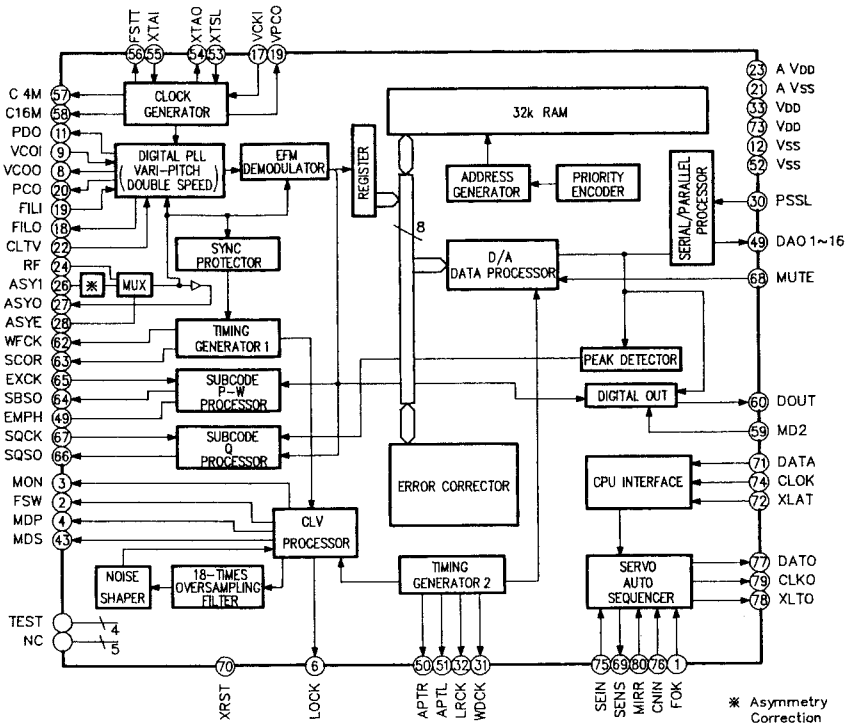
When momentary shortcircuit "CLEAR" and "GND" of Jumper on P.W.B. in state of stop position, PLAY (▶) and PAUSE (▌▌) indicator lights and start writing in, when PLAY (▶) and PAUSE (▌▌) indicators are put out after few seconds, the initializing of IC703 is completed.

SEMICONDUCTORS

●IC's

CXD2500BQ



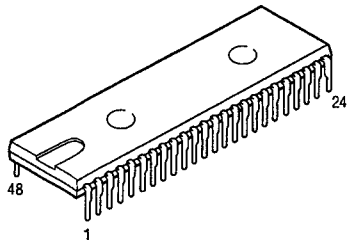


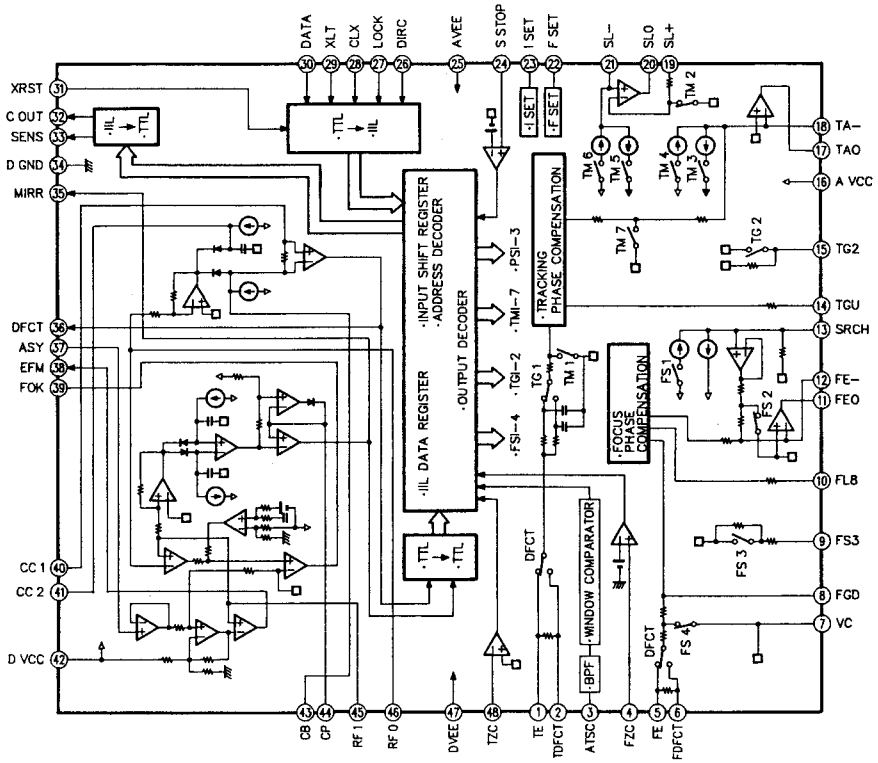
CXD2500BQ Terminal Function

Terminal No.	Symbol	I/O		Terminal Function
1	FOK	I		Input terminal for OK focusing. Use for Servo-autosequencer.
2	FSW	O	Z,0	Output to shift time constant of output filter for spindle motor.
3	MON	O	1,0	ON/OFF control output for spindle motor.
4	MDP	O	1,Z,0	Servo control for spindle motor.
5	MDS	O	1,Z,0	Servo control for spindle motor.
6	LOCK	O	1,0	Sampling GFS by 460 Hz and if it is "H", delivers "H" ; if it is continuously "L" 8 times, delivers "L".
7	NC	—		
8	VCOO	O	1,0	Oscillation current output for analog EFM PLL.
9	VCOI	I		Oscillation current output for analog EFM PLL. f LOCK=8.6436MHz.
10	TEST	I		TEST output. Normally GND.
11	PDO	O	1,Z,0	Charge pump output for analog EFM PLL.
12	Vss			GND.
13	NC	—		
14	NC	—		
15	NC	—		
16	VPCO	O	1,Z,0	Charge pump output for variable pitch PLL.
17	VCKI	I		Clock input from external VCO for variable pitch. fc center=16.9344MHz.
18	FILO	O	Analog	Filter output for master PLL. (slave=digital PLL)
19	FILI	I		Filter input for master PLL.
20	PCO	O	1,Z,0	Charge pump output for master PLL.
21	AVss			Analog GND.
22	CLTV	I		Control voltage input for master VCO.
23	AVDD			Analog power supply (+5V).
24	RF	I		EFM signal input.
25	BIAS	I		Constant-current input for Asymmetry circuit.
26	ASYI	I		Comparator voltage input for Asymmetry.
27	ASYO	O	1,0	Full swing output for EFM. (L=Vss, H=VDD).
28	ASYE	I		L: Asymmetry circuit → OFF. H: Asymmetry circuit → ON.
29	NC	—		
30	PSSL	I		Input to shift output mode of audio data. Serial output at L; parallel output at H.

Terminal No.	Symbol	I/O		Terminal Function
31	WDCK	O	1,0	D/A Interface for 48 bit slot. Word-clock f=2 Fs.
32	LRCK	O	1,0	D/A Interface for 48 bit slot. LR-clock f= Fs.
33	VDD			Power supply (+5V).
34	DA16	O	1,0	At PSSL=1 for DA16 (MBS) output; PSSL=0 for serial data of 48 bit slot. (2s'COMP, MSB first).
35	DA15	O	1,0	At PSSL=1 for DA15 output; PSSL=0 for bit clock of 48 bit slot.
36	DA14	O	1,0	At PSSL=1 for DA14 output; PSSL=0 for serial data of 64 bit slot. (2s'COMP, LSB first).
37	DA13	O	1,0	At PSSL=1 for DA13 output; PSSL=0 for bit clock of 64 bit slot.
38	DA12	O	1,0	At PSSL=1 for DA12 output; PSSL=0 for LR clock of 64 bit slot.
39	DA11	O	1,0	At PSSL=1 for DA11 output; PSSL=0 for GTOP output.
40	DA10	O	1,0	At PSSL=1 for DA10 output; PSSL=0 for XUGF output.
41	DA09	O	1,0	At PSSL=1 for DA09 output; PSSL=0 for XPLCK output.
42	DA08	O	1,0	At PSSL=1 for DA08 output; PSSL=0 for GFS output.
43	DA07	O	1,0	At PSSL=1 for DA07 output; PSSL=0 for RFCK output.
44	DA06	O	1,0	At PSSL=1 for DA06 output; PSSL=0 for C2PO output.
45	DA05	O	1,0	At PSSL=1 for DA05 output; PSSL=0 for XRAOF output.
46	DA04	O	1,0	At PSSL=1 for DA04 output; PSSL=0 for MNT3 output.
47	DA03	O	1,0	At PSSL=1 for DA03 output; PSSL=0 for MNT2 output.
48	DA02	O	1,0	At PSSL=1 for DA02 output; PSSL=0 for MNT1 output.
49	DA01	O	1,0	At PSSL=1 for DA01 output; PSSL=0 for MNT0 output.
50	APTR	O	1,0	Control output for aperture compensation. In H for R-ch.
51	APTL	O	1,0	Control output for aperture compensation. In H for L-ch.
52	Vss			GND.
53	XTAI	I		X'tal oscillation circuit input. By selecting of mode, f=16.9344MHz or 33.8688MHz.
54	XTAO	O	1,0	X'tal oscillation circuit input. f=16.9344MHz.
55	XTSL	I		Selection input terminal of X'tal. "L" for X'tal 16.9344MHz; "H" for 33.8688MHz.
56	FSTT	O	1,0	2/3 Dividing output of 53 and 54 terminal. No change by variable pitch.
57	C4M	O	1,0	4.2336MHz output. When variable pitched, simultaneously changes.
58	C16M	O	1,0	16.9344MHz output. When variable pitched, simultaneously changes.
59	MD2	I		Digital-out ON/OFF control. ON at H; OFF at L.
60	DOUT	O	1,0	Digital-out output terminal.
61	EMPH	O	1,0	When playback disc emphasized, outputs H; otherwise outputs L.
62	WFCK	O	1,0	WFCK (Write Flame Clock) output.
63	SCOR	O	1,0	Output of subcode sync. S0+S1. H output when either one detected.
64	SBSO	O	1,0	Serial output of Sub P~W.
65	EXCK	I		Clock iutput for SBSO read-out.
66	SQSO	O	1,0	Output for Sub Q 80 bits and PCM peak level 16 bits.
67	SQCK	I		Clock input for SQSO read-out.
68	MUTE	I		Mute at H; remove mute at L.
69	SENS	—	1,Z,0	SENS output. Outputs to CPU.
70	XRST	I		System reset input. Resets at "L".
71	DATA	I		Input of serial data from CPU.
72	XLAT	I		Input for latch from CPU. Latches serial data at release.
73	VDD			Power supply (+5V).
74	CLOK	I		Serial data transfer clock input from CPU.
75	SEIN	I		SENS input from SSP.
76	CNIN	I		Input of tracking pulse.
77	DATO	O	1,0	Serial data output to SSP.
78	XLTO	O	1,0	Serial data latch output to SSP.
79	CLKO	O	1,0	Serial data transfer clock output to SSP.
80	MIRR	I		Mirror signal input. Use for track jump for over 128 tracks, using autosequencer.

CXA1372S



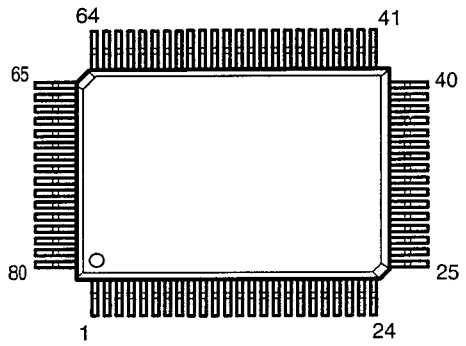


CXA1372S Terminal Function

Terminal No.	Symbol	I/O	Terminal Function
1	TE	I	Tracking error signal input terminal.
2	TDFCT	I	Capacitor connecting terminal for time constant at the time of defect.
3	ATSC	I	Input terminal of ATSC detecting window comparator.
4	FZC	I	Input terminal of focus zero-cross comparator.
5	FE	I	Focus error signal input terminal.
6	FDFCT	I	Capacitor connecting terminal for time constant at the time of defect.
7	Vc	I	Mid-point voltage input terminal.
8	FGD	I	In case of reducing higher range gain of focus servo, connect a capacitor between this terminal and terminal number (9).
9	FS3	I	Shifts higher range gain of focus servo by FS3 ON/OFF.
10	FLB	I	Terminal for external time constant to increase lower range of focus servo.
11	FEO	O	Focus drive output.
12	FE–	I	Reverse input terminal for focus amplifier.
13	SRCH	I	Terminal for external time constant to make focus search waveform.
14	TGU	I	Terminal for external time constant to shift higher range gain of tracking.
15	TG2	I	Terminal for external time constant to shift higher range gain of tracking.
17	TAO	O	Tracking drive output.
18	TA–	I	Reverse input terminal for tracking amplifier.
19	SL+	I	Non-reverse input terminal for sled amplifier.
20	SLO	O	Sled drive output.
21	SL–	I	Reverse input terminal for sled amplifier.
22	FSET	I	Terminal to compensate peak in focus/tracking phase.
23	ISET	I	Delivers a current to set the height of focus search, track jump, and sled kick.
24	SSTOP	I	Terminal for limit switch ON/OFF to detect disc innermost circle.
26	DIRC	I	Terminal is used at the time of 1 track jump. A 47 kohm pull up resistor is included.
27	LOCK	I	Reckless drive protection circuit of sled; activates at "L". A 47k ohm pull up resistor is included.
28	CLK	I	Serial data transfer clock input from CPU.
29	XLT	I	Latch input from CPU.
30	DATA	I	Serial data input from CPU.

Terminal No.	Symbol	I/O	Terminal Function
31	XRST	I	Reset input terminal. Resets at "L".
32	C.OUT	O	Terminal to output signal for track number count.
33	SENS	O	Terminal to output FZC, AS, TZC, SSTOP by command from CPU.
35	MIRR	O	Output terminal for MIRR comparator.
36	DFCT	O	Output terminal for DEFECT comparator.
37	ASY	I	Input terminal for auto-symmetric control.
38	EFM	O	Output terminal for EFM comparator.
39	FOK	O	Output terminal for focus OK (FOK) comparator.
40	CC1	O	DEFECT bottom hold output terminal.
41	CC2	I	Input terminal to input DEFECT bottom hold output by capacitance combination.
43	CB	I	Capacitor connecting terminal for DEFECT bottom hold.
44	CP	I	MIRR hold capacitor connecting terminal. A non-reverse input terminal for MIRR comparator.
45	RFI	I	Input terminal to input RF summing amplifier output by capacitance combination.
46	RFO	O	Output terminal for RF summing amplifier. Check point for eye pattern.
48	TZC	I	Tracking zero-cross comparator input terminal.

UPD78043GF-098-3B9



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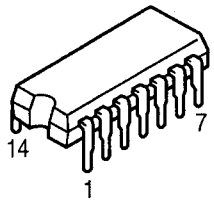
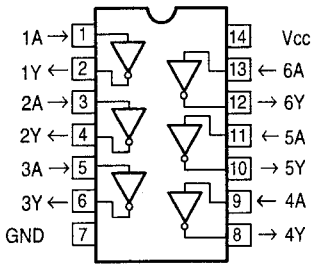
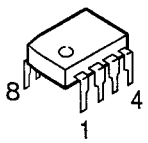
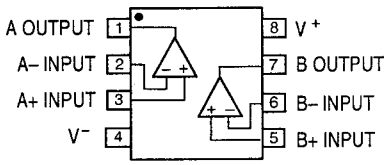


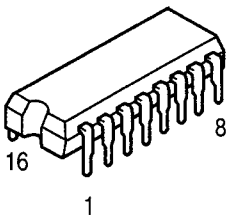


NJM2068DDC (IC201)
NJM4558 (IC901)





M5290P
PCM-61P
PCM-1702



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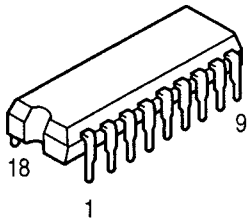
MN6632A



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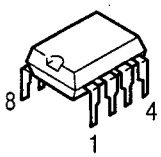
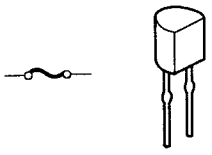


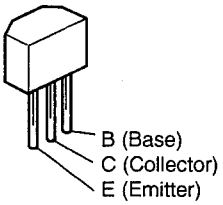
● IC PROTECTOR

ICP-N15

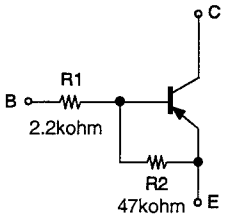


● TRANSISTORS

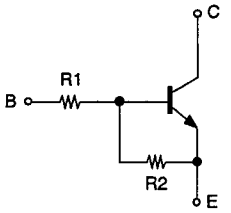
DTC124XS (22k-47k)
DTC-114ES (10k-10k)
DTC-144ES (47k-47k)



DTC124XS (22k-47k)

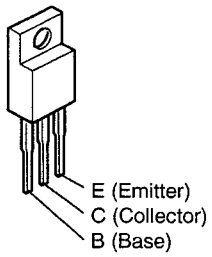


DTC-114ES (10k-10k)
DTC-144ES (47k-47k)

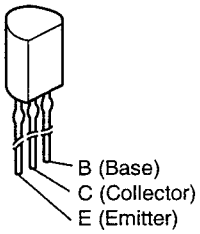


	R1	R2
DTC-114ES	10kohm	10kohm
DTC-144ES	47kohm	47kohm

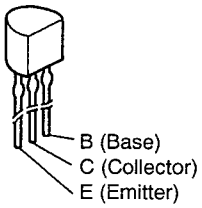
2SD1274
2SD1913



2SB562 (C)
2SD468 (C)

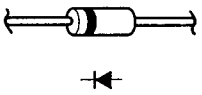


2SA933 (S)
2SD2144

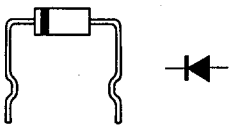


● DIODES

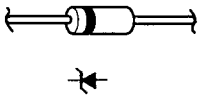
1S2076A
1SS270A



1A3-I



HZS7B-1
HZS30-1



NOTE FOR PARTS LIST

- Part indicated with the mark " ◉ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:

Parts marked with this symbol ⚠ ▒▒ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

● Resistors

Ex.: RN (Type) 14K (Shape and performance) 2E (Power) 182 (Resistance) G (Allowable error) FR (Others)

RD : Carbon	2B : 1/8W	F : ±1%	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : ±2%	NL : Low noise type
RS : Metal oxide film	2H : 1/2W	J : ±5%	NB : Non-burning type
RW : Winding	3A : 1W	K : ±10%	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : ±20%	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

*** Resistance**

1 8 2 ⇒ 1800 ohm = 1.8 kohm
- 2: 2-digit effective number.
- 8: Indicates number of zeros after effective number.
- Units: ohm

1 R 2 ⇒ 1.2 ohm
- 2: 1-digit effective number.
- R: 2-digit effective number, decimal point indicated by R.
- Units: ohm

● Capacitors

Ex.: CE (Type) 04W (Shape and performance) 1H (Dielectric strength) 2R2 (Capacity) M (Allowable error) BP (Others)

CE : Aluminum foil electrolytic	0J : 6.3V	F : ±1%	HS : High stability type
CA : Aluminum solid electrolytic	1A : 10V	G : ±2%	BP : Non-polar type
CS : Tantalum electrolytic	1C : 16V	J : ±5%	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : ±10%	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : ±20%	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : +80% −20%	U : UL part
CP : Oil	2A : 100V	P : +100% −0%	C : CSA part
CM : Mica	2B : 125V	C : ±0.25pF	W : UL-CSA type
CF : Metallized	2C : 160V	D : ±0.5pF	F : Lead wire forming
CH : Metallized	2D : 200V	∗ : Others	
	2E : 250V		
	2H : 500V		
	2J : 630V		

*** Capacity (electrolyte only)**

2 2 2 ⇒ 2200μF
- 2: 2-digit effective number.
- 2: Indicates number of zeros after effective number.
- Units: μF.

2 R 2 ⇒ 2.2μF
- 2: 1-digit effective number.
- R: 2-digit effective number, decimal point indicated by R.
- Units: μF.

*** Capacity (except electrolyte)**

2 2 2 ⇒ 2200pF = 0.0022μF
- 2: 2-digit effective number.
- 2: (More than 2) Indicates number of zeros after effective number.
- Units: μF.

2 2 1 ⇒ 220pF
- 2: 2-digit effective number.
- 1: (0 or 1) Indicates number of zeros after effective number.
- Units: pF.

- When the dielectric strength is indicated in AC, "AC" is included after the dieelectric strength value.

PARTS LIST OF P.W. BOARD

1U-2787 MAIN UNIT (DCM-560)

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC101	262 1305 001	IC CXA1372S	
IC103~106	263 0565 007	IC BA15218	
IC201	262 2068 004	Micro Computer UPD78043GF-098-3B9	
IC202	262 1819 005	IC CXD2500BQ	
IC203	262 1567 001	IC X24C08P	
IC205	262 1265 002	IC TC74HCU04AP	
IC301	262 1869 000	IC SM5845AF	
IC306,307	262 1837 016	IC PCM1702P-J	
IC308,309	262 0864 006	IC UPC4570C	
IC501	263 0693 005	IC M5290P	
IC502~505	268 0073 905	IC Protector ICP-N15T	
TR101	272 0025 907	Transistor 2SB562(C)TF	
TR102	274 0036 905	Transistor 2SD468(C)TF	
TR103	272 0025 907	Transistor 2SB562(C)TF	
TR104	274 0036 905	Transistor 2SD468(C)TF	
TR105	272 0025 907	Transistor 2SB562(C)TF	
TR106	274 0036 905	Transistor 2SD468(C)TF	
TR107	272 0025 907	Transistor 2SB562(C)TF	
TR108	274 0036 905	Transistor 2SD468(C)TF	
TR127,128	274 0036 905	Transistor 2SD468(C)TF	
TR180	272 0025 907	Transistor 2SB562(C)TF	
TR181	274 0136 009	Transistor 2SD1913	
TR182	272 0025 907	Transistor 2SB562(C)TF	
TR183	274 0036 905	Transistor 2SD468(C)TF	
TR184	272 0025 907	Transistor 2SB562(C)TF	
TR185	274 0036 905	Transistor 2SD468(C)TF	
TR190	269 0040 902	Transistor DTC144ES(47K-47K)	Built in Resistor
TR191	278 0009 002	Transistor PT491F	
TR201,202	269 0020 906	Transistor DTC114ES(10K-10K)	Built in Resistor
TR501	274 0136 009	Transistor 2SD1913	
TR502	272 0093 007	Transistor 2SB1274	
TR503	271 0101 925	Transistor 2SA933(Q)T-70	
TR702	269 0014 909	Transistor DTA124XS(22K-47K)	Built in Resistor
TR703	269 0020 906	Transistor DTC114ES(10K-10K)	Built in Resistor
TR704	271 0101 925	Transistor 2SA933(Q)T-70	
TR706,707	274 0160 907	Transistor 2SD2144STPU	
TR711	274 0036 905	Transistor 2SD468(C)TF	
TR712	272 0025 907	Transistor 2SB562(C)TF	
D101	278 0010 004	LED(infrared rays) GL450	
D201,202	276 0462 902	Zener Diode HZS6B-1TD	
D501~506	276 0613 900	Diode 1A3-I	
D507	276 0483 907	Zener Diode HZS30-1TD	
D508	276 0465 909	Zener Diode HZS7B-1TD	
D509,510	276 0613 900	Diode 1A3-I	
D701	276 0432 903	Diode 1SS270A TE	
RESISTORS GROUP (not included Carbon Film ±5% 1/4W type)			
VR101,102	211 6064 093	Adjust 22kohm	V06PB223
VR302,303	211 6064 022	Adjust 100kohm	V06PB104
CAPACITORS GROUP			
C096,097	254 4260 935	Electrolytic 0.47μF/50V	CE04W1HR47MT
C098,099	254 4260 993	Electrolytic 22μF/50V	CE04W1H220MT
C103	255 1206 908	Film 0.0033μF/50V	CQ93M1H332JT
C104	253 1179 990	Ceramic 560pF/50V	CK45B1H561KT

Ref. No.	Part No.	Part Name	Remarks
C107	256 1034 908	Metallized 0.027μF/50V	CF93A1H273JT
C108	255 1204 900	Film 0.0022μF/50V	CQ93M1H222JT
C109~112	256 1034 979	Metallized 0.1μF/50V	CF93A1H104JT
C113	254 4337 910	Electrolytic 6.8μF/50V	CE04W1H6R8MT
C114	256 1035 910	Metallized 0.22μF/50V	CF93A1H224JT
C116	255 1212 905	Film 0.01μF/50V	CQ93M1H103JT
C117	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C118,119	253 1180 921	Ceramic 0.001μF/50V	CK45B1H102KT
C120,121	253 1181 904	Ceramic 0.01μF/50V	CK45B1H103ZT
C122,123	254 4260 919	Electrolytic 0.22μF/50V	CE04W1HR22MT
C124	255 1212 905	Film 0.01μF/50V	CQ93M1H103JT
C125	256 1034 911	Metallized 0.033μF/50V	CF93A1H333JT
C126	253 1212 905	Film 0.01μF/50V	CQ93M1H103JT
C127	255 1206 908	Film 0.0033μF/50V	CQ93M1H332JT
C128	255 1212 905	Film 0.01μF/50V	CQ93M1H103JT
C129	255 1208 906	Film 0.0047μF/50V	CQ93M1H472JT
C131	253 1209 905	Film 0.0056μF/50V	CQ93M1H562KT
C132	253 4538 910	Ceramic 75pF/50V	CC45SL1H750JT
C133	253 4536 909	Ceramic 10pF/50V	CC45SL1H100DT
C135	254 3055 918	Electrolytic 10μF/35V Bipolar	CE04D1V100MBPT
C136	253 4538 923	Ceramic 82pF/50V	CC45SL1H820JT
C138	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C139	253 4537 979	Ceramic 51pF/50V	CC45SL1H510JT
C142	253 4537 979	Ceramic 51pF/50V	CC45SL1H510JT
C148	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C126	253 1181 904	Ceramic 0.01μF/50V	CK45B1H103ZT
C150	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C155	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C170,171, 173	254 4254 938	Electrolytic 47μF/16V	CE04W1C470MT
C175	256 1034 979	Metallized 0.1μF/50V	CF93A1H104JT
C176	253 1181 904	Ceramic 0.01μF/50V	CK45B1H103ZT
C177	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C180	253 4536 941	Ceramic 15pF/50V	CC45SL1H150JT
C181	253 4538 910	Ceramic 75pF/50V	CC45SL1H750JT
C182	253 4536 941	Ceramic 15pF/50V	CC45SL1H150JT
C201,202	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C203	253 1181 904	Ceramic 0.01μF/50V	CK45B1H103ZT
C204	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C210	256 1034 937	Metallized 0.047μF/50V	CF93A1H473JT
C211	253 1180 947	Ceramic 0.0015μF/50V	CK45B1H152KT
C212	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C223,224	253 4535 955	Ceramic 5pF/50V	CC45SL1H050CT
C253	254 4254 954	Electrolytic 220μF/16V	CE04W1C221MT
C301	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C304,305	253 1179 958	Ceramic 270pF/50V	CK45B1H271KT
C306,307	253 4538 949	Ceramic 100pF/50V	CC45SL1H101JT
C308,309	255 4232 937	Film 0.001μF/100V	CQ93P2A102KT
C310,311	255 4292 979	Film 200pF/100V	CQ93P2A201JT
C312~315	254 4260 980	Electrolytic 10μF/50V	CE04W1H100MT
C316,317	235 0049 900	Electrolytic 10μF/50V(ARA)	CE04W1H100MT
C318,319	254 4260 980	Electrolytic 10μF/50V	CE04W1H100MT
C320~325	235 0049 900	Electrolytic 10μF/50V(ARA)	CE04W1H100MT
C501	254 4254 792	Electrolytic 2200μF/16V	CE04W1C222MC
C502	254 4255 717	Electrolytic 4700μF/16V	CE04W1C472MC
C503,504	254 4254 954	Electrolytic 220μF/16V	CE04W1C221MT
C505	254 4260 964	Electrolytic 3.3μF/50V	CE04W1H3R3MT
C507	254 4262 946	Electrolytic 47μF/63V	CE04W1J470MT
C508	254 4261 921	Electrolytic 100μF/50V	CE04W1H101MT

1U-2785 MAIN UNIT (DCM-460)

Ref. No.	Part No.	Part Name	Remarks
C509,510	254 4261 905	Electrolytic 33µF/50V	CE04W1H330MT
C511	254 4260 964	Electrolytic 3.3µF/50V	CE04W1H3R3MT
C701	254 4260 948	Electrolytic 1µF/50V	CE04W1H010MT
C703	253 9036 909	Ceramic 0.1µF/25V	CK45=1E104ZT
C704	253 4538 949	Ceramic 100pF/50V	CC45SL1H101JT
C710~713	253 1180 921	Ceramic 0.001µF/50V	CK45B1H102KT
C716,717	254 4254 941	Electrolytic 100µF/16V	CE04W1C101MT
C722,723	254 4254 909	Electrolytic 10µF/16V	CE04W1C100MT
C730	253 9036 909	Ceramic 0.1µF/25V	CK45=1E104ZT
C731	254 4254 925	Electrolytic 33µF/16V	CE04W1C330MT
C732	253 4538 949	Ceramic 100pF/50V	CC45SL1H101JT
C733	253 9036 909	Ceramic 0.1µF/25V	CK45=1E104ZT
C734	254 4254 954	Electrolytic 220µF/16V	CE04W1C221MT
C736	253 9036 909	Ceramic 0.1µF/25V	CK45=1E104ZT
C910	254 3056 917	Electrolytic 1µF/50V Bipolar	CE04D1H010MBPT
C911	253 1180 921	Ceramic 0.001µF/50V	CK45B1H102KT
OTHER PARTS			
X200	399 0036 013	Crystal Resonator (16.9344MHz)	
X201	399 0111 006	Ceramic Resonator (CST 4.23MGW040)	
PT700	231 8063 009	Pulse Trans	
JK701	204 8356 002	1P Pin Jack	
JK702,703	204 8373 014	2P Pin Jack	
JK704	204 8416 007	Mini Jack	
L701,702, 704~707	235 0049 900	Beads Inductor	
SW100,191	212 1072 009	Detect Switch (SSCF21)	
CB101	205 0683 006	FFC Conn.Base (12P)	
CB102	205 0343 058	5P Conn. Base(KR-PH)	
CB103	205 0406 063	6P Conn. Base(KR-PH)	
CB104	205 0543 036	3P Conn Base (YEL)	
CB105	205 0406 034	3P Conn. Base(KR-PH)	
CB106	205 0343 032	3P Conn. Base(KR-PH)	
CB107	205 0321 038	3P Conn.Base (RED)	
CB108	205 0323 036	3P Conn.Base (BLK)	
CB201	205 0491 010	31P FFC Conn.Base	
CB500	205 0581 001	2P VH Conn. Base	
CB501	205 0343 061	6P Conn. Base(KR-PH)	
CB701	205 0375 000	10P Conn. Base(KR-PH)	
CN106	203 4805 033	3P PH-SAN Conn. Cord	
CN107	203 4805 020	3P PH-SAN Conn. Cord	
CN108	203 4810 002	3P PH-SAN Conn. Cord	
CN501	204 0371 001	6P KR-DA Conn. Cord	
TP101,102	205 0190 065	6P NH Conn. Base	
⚠	233 5941 010	Power Transformer	U.S.A. Canada
⚠	233 5993 000	Power Transformer	Europe
⚠	233 6061 009	Power Transformer	Multi Voltage
⚠	212 4698 008	Voltage Serector(D)	Multi Voltage Models Only

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC101	262 1305 001	IC CXA1372S	
IC103~106	263 0081 002	IC NJM4558D	
IC201	262 2068 004	Micro Computer UPD78043GF-098-3B9	
IC202	262 1819 005	IC CXD2500BQ	
IC205	262 1265 002	IC TC74HCU04AP	
IC300	262 1869 000	IC SM5845AF	
IC302	262 1409 004	IC PCM61P-L	
IC501	263 0693 005	IC M5290P	
IC502,503	268 0073 905	IC Protector ICP-N15T	
IC703	262 1806 005	IC NM24C08N	
IC705	263 0081 002	IC NJM4558D	
IC706,707	263 0565 007	IC BA15218	
TR101	272 0025 907	Transistor 2SB562(C)TF	
TR102	274 0036 905	Transistor 2SD468(C)TF	
TR103	272 0025 907	Transistor 2SB562(C)TF	
TR104	274 0036 905	Transistor 2SD468(C)TF	
TR105	272 0025 907	Transistor 2SB562(C)TF	
TR106	274 0036 905	Transistor 2SD468(C)TF	
TR107	272 0025 907	Transistor 2SB562(C)TF	
TR108	274 0036 905	Transistor 2SD468(C)TF	
TR127,128	274 0036 905	Transistor 2SD468(C)TF	
TR180	272 0025 907	Transistor 2SB562(C)TF	
TR181	274 0136 009	Transistor 2SD1913	
TR182	272 0025 907	Transistor 2SB562(C)TF	
TR183	274 0036 905	Transistor 2SD468(C)TF	
TR184	272 0025 907	Transistor 2SB562(C)TF	
TR185	274 0036 905	Transistor 2SD468(C)TF	
TR190	269 0040 902	Transistor DTC144ES(47K-47K)	Built in Resistor
TR191	269 0009 002	Transistor PT491F	
TR201,202	269 0020 906	Transistor DTC114ES(10K-10K)	Built in Resistor
TR501	274 0136 009	Transistor 2SD1913	
TR502	272 0093 007	Transistor 2SB1274	
TR503	271 0192 905	Transistor 2SA933S(S)TP	
TR702	269 0014 909	Transistor DTA124XS(22K-47K)	Built in Resistor
TR703	269 0020 906	Transistor DTC114ES(10K-10K)	Built in Resistor
TR704	271 0192 905	Transistor 2SA933S(S)TP	
TR706~709	274 0160 907	Transistor 2SD2144STPU	
D101	278 0010 004	LED(infrared rays) GL450	
D102	276 0503 900	Diode 1SS198TE	
D201,202	276 0462 902	Zener Diode HZS6B-1TD	
D501~506	276 0613 900	Diode 1A3-I	
D507	276 0483 907	Zener Diode HZS30-1TD	
D508	276 0465 909	Zener Diode HZS7B-1TD	
D701	276 0432 903	Diode 1SS270A TE	
RESISTORS GROUP (not included Carbon Film ±5% 1/4W type)			
VR101,102	211 6064 093	Adjust 22kohm	V06PB223
VR300,301	211 6064 022	Adjust 100kohm	V06PB104
CAPACITORS GROUP			
C096,097	254 4260 935	Electrolytic 0.47µF/50V	CE04W1H R47MT
C098,099	254 4260 993	Electrolytic 22µF/50V	CE04W1H 220MT
C103	255 1206 908	Film 0.0033µF/50V	CQ93M1H 332JT

Ref. No.	Part No.	Part Name	Remarks
C104	253 1179 990	Ceramic 560pF/50V	CK45B1H561KT
C107	255 1217 900	Film 0.027μF/50V	CQ93M1H273JT
C108	255 1204 900	Film 0.0022μF/50V	CQ93M1H222JT
C109~112	256 1034 979	Metallized 0.1μF/50V	CF93A1H104JT
C113	254 4337 910	Electrolytic 6.8μF/50V	CE04W1H6R8MT
C114	256 1035 910	Metallized 0.22μF/50V	CF93A1H224JT
C115	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C116	255 1212 905	Film 0.01μF/50V	CQ93M1H103JT
C117	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C118,119	253 1180 921	Ceramic 0.001μF/50V	CK45B1H102KT
C120,121	253 1181 904	Ceramic 0.01μF/50V	CK45B1H103ZT
C122,123	254 4260 919	Electrolytic 0.22μF/50V	CE04W1HR22MT
C124	255 1212 905	Film 0.01μF/50V	CQ93M1H103JT
C125	256 1034 911	Metallized 0.033μF/50V	CF93A1H333JT
C126	255 1212 905	Film 0.01μF/50V	CQ93M1H103JT
C127	255 1206 908	Film 0.0033μF/50V	CQ93M1H332JT
C128	255 1212 905	Film 0.01μF/50V	CQ93M1H103JT
C129	255 1208 906	Film 0.0047μF/50V	CQ93M1H472JT
C131	255 1209 905	Film 0.0056μF/50V	CQ93M1H562JT
C132	253 4538 910	Ceramic 75pF/50V	CC45SL1H750JT
C133	253 4536 909	Ceramic 10pF/50V	CC45SL1H100DT
C134	253 4538 923	Ceramic 82pF/50V	CC45SL1H820JT
C135	254 3055 918	Electrolytic 10μF/35V Bipolar	CE04D1V100MBPT
C138	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C139	253 4537 979	Ceramic 51pF/50V	CC45SL1H510JT
C142	253 4537 979	Ceramic 51pF/50V	CC45SL1H510JT
C170,171	254 4254 938	Electrolytic 47μF/16V	CE04W1C470MT
C173	254 4254 938	Electrolytic 47μF/16V	CE04W1C470MT
C175	256 1034 979	Metallized 0.1μF/50V	CF93A1H104JT
C176	253 1181 904	Ceramic 0.01μF/50V	CK45B1H103ZT
C177	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C180	253 4536 941	Ceramic 15pF/50V	CC45SL1H150JT
C181	253 4538 910	Ceramic 75pF/50V	CC45SL1H750JT
C182	253 4536 941	Ceramic 15pF/50V	CC45SL1H150JT
C201	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C202,203	253 1181 904	Ceramic 0.01μF/50V	CK45B1H103ZT
C204	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C210	256 1034 937	Metallized 0.047μF/50V	CF93A1H473JT
C211	253 1180 947	Ceramic 0.0015μF/50V	CK45B1H152KT
C212	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C223,224	253 4535 955	Ceramic 5pF/50V	CC45SL1H050CT
C230	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C253	254 4254 954	Electrolytic 220μF/16V	CE04W1C221MT
C300,301	254 4254 954	Electrolytic 220μF/16V	CE04W1C221MT
C302	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C304	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C306,307	253 1180 905	Ceramic 680pF/50V	CK45B1H681KT
C308,309	253 1121 906	Ceramic 0.0056μF/50V	CK45B1H562KT
C312,355	253 1181 904	Ceramic 0.01μF/50V	CK45B1H103ZT
C501	254 4254 792	Electrolytic 2200μF/16V	CE04W1C222MC
C502	254 4255 717	Electrolytic 4700μF/16V	CE04W1C472MC
C503	254 4254 954	Electrolytic 220μF/16V	CE04W1C221MT
C504	254 4254 967	Electrolytic 330μF/16V	CE04W1C331MT
C505	254 4260 964	Electrolytic 3.3μF/50V	CE04W1H3R3MT
C507	254 4262 946	Electrolytic 47μF/63V	CE04W1J470MT
C508	254 4261 921	Electrolytic 100μF/50V	CE04W1H101MT
C509,510	254 4258 934	Electrolytic 33μF/35V	CE04W1V330MT
C511	254 4260 964	Electrolytic 3.3μF/50V	CE04W1H3R3MT

Ref. No.	Part No.	Part Name	Remarks
C704	254 4254 954	Electrolytic 220μF/16V	CE04W1C221MT
C706	253 4537 924	Ceramic 33pF/50V	CC45SL1H330JT
C709	253 4537 924	Ceramic 33pF/50V	CC45SL1H330JT
C710~715	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT
C720,721	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT
C730	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C731	254 4254 925	Electrolytic 33μF/16V	CE04W1C330MT
C732	253 4538 949	Ceramic 100pF/50V	CC45SL1H101JT
C733	253 1181 904	Ceramic 0.01μF/50V	CK45B1H103ZT
C900	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C910	254 3056 917	Electrolytic 1μF/50V Bipolar	CE04D1H010MBPT
C911	253 1180 921	Ceramic 0.001μF/50V	CK45B1H102ZT
C996~999	253 1180 921	Ceramic 0.001μF/50V	CK45B1H102KT

OTHER PARTS

X200	399 0036 013	Crystal Resonator(16.9344MHz)	
X201	399 0111 006	Ceramic Resonator (CST4.23MGW040)	
L701,702	235 0049 900	Beads Inductor	
L704~707	235 0049 900	Beads Inductor	
PT700	231 8063 009	Pulse Trans	
JK701	204 8356 002	1P Pin Jack	
JK702,703	204 8373 001	2P Pin Jack	
JK704	204 8416 007	Mini Jack	
SW100,191	212 1072 009	Detect Switch (SSCF21)	
CB101	205 0683 006	FFC Conn. Base (12P)	
CB102	205 0343 058	5P Conn. Base(KR-PH)	
CB103	205 0406 063	6P Conn. Base(KR-PH)	
CB104	205 0543 036	3P Conn. Base (YEL)	
CB105	205 0406 034	3P Conn. Base(KR-PH)	
CB106	205 0343 032	3P Conn. Base(KR-PH)	
CB107	205 0321 038	3P Conn. Base (RED)	
CB108	205 0323 036	3P Conn. Base (BLK)	
CB200	205 0736 063	35P FFC Conn. Base	
CB500	205 0581 001	2P VH Conn. Base	
CB501	205 0343 061	6P Conn. Base(KR-PH)	
CN106	203 4805 033	3P PH-SAN Conn. Cord	
CN107	203 4805 020	3P PH-SAN Conn. Cord	
CN108	203 4810 002	3P PH-SAN Conn. Cord	
CN501	204 0371 001	6P KR-DA Conn. Cord	
TP101,102	205 0190 065	6P NH Conn. Base	
⚠	233 5941 010	Power Transformer	U.S.A. Canada
⚠	233 6063 007	Power Transformer	Europe
⚠	233 6061 009	Power Transformer	Multi. Voltage
⚠	212 4698 008	Voltage Selector(D)	Multi. Voltage Models Only

1U-2788 DISPLAY UNIT (DCM-560)

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC705	263 0565 007	IC BA15218	
D102	278 0006 005	Photo Interrupter	
CAPACITORS GROUP			
C601~605	253 1180 921	Ceramic 0.001μF/50V	CK45F1H102ZT
C702,703	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C705,706	253 4538 907	Ceramic 68PF/50V	CC45SL1H680JT
C720,721	254 4254 941	Electrolytic 100μF/16V	CE04W1C101MT
OTHER PARTS			
SW600	212 1039 000	1P Push Switch	
SW601~626	212 4388 004	Light Touch Switch	
FL600	393 4132 009	FL Tube (FIP8RM6)	
RM601	499 0150 008	REMOTE SENSOR (SBX1610-52)	
JK601	204 8364 007	HEAD PHONE JACK	
CN200	205 0491 010	31P FFC Conn.Base	
CB111	205 0343 032	3P Conn. Base (KR-PH)	
CB115	205 0355 046	4P KR Conn.Base (L)	
CB605	205 0343 045	4P Conn. Base (KR-PH)	
CB702	205 0375 000	10P Conn. Base (KR-PH)	
	009 0073 005	31P FFC Cable	
	217 0172 002	Roulette Motor	

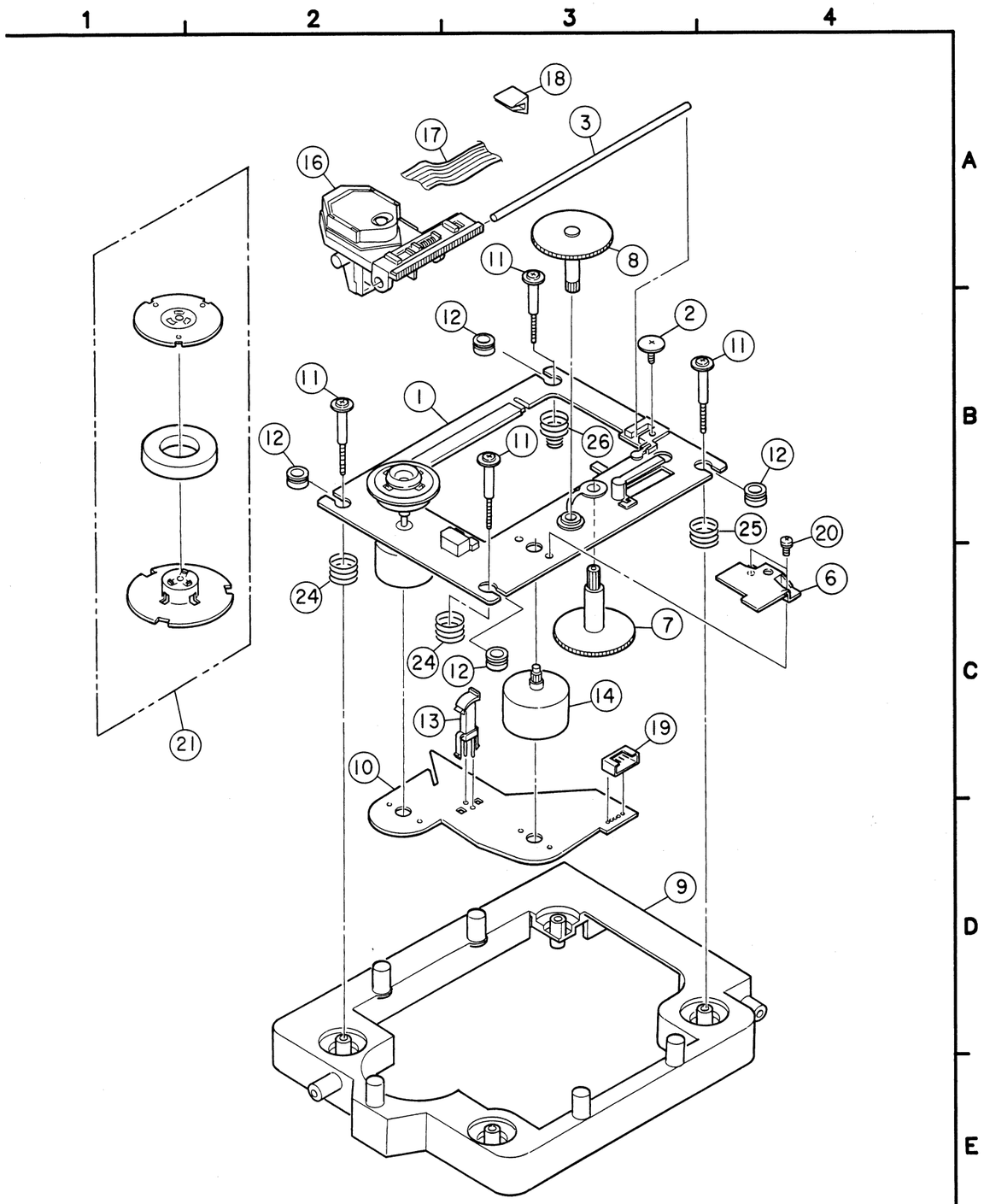
3U-2576 DISPLAY UNIT (DCM-460)

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
TR600,601	274 0160 907	Transistor 2SD2144STPU	
D102	278 0006 005	Photo Interrupter	
CAPACITORS GROUP			
C601~605	253 1180 921	Ceramic 0.001μF/50V	CK45F1H102ZT
C606,607	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C608	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
OTHER PARTS			
SW600	212 1039 000	1P Push Switch	
SW601~626	212 4388 004	Light Touch Switch	
FL600	393 4132 009	FL Tube (FIP8RM6)	
RM601	499 0150 008	REMOTE SENSOR (SBX1610-52)	
JK601	204 8364 007	HEAD PHONE JACK	
CN200	205 0736 063	35P FFC Conn.Base	
CB111	205 0343 032	3P Conn.Base (KR-PH)	
CB115	205 0355 046	4P KR Conn.Base (L)	
CB602	205 0343 074	7P Conn.Base (KR-PH)	
CB603	205 0355 075	7P KR Conn.Base (L)	
	009 0090 004	35P FFC Cable	
	217 0172 002	Roulette Motor	

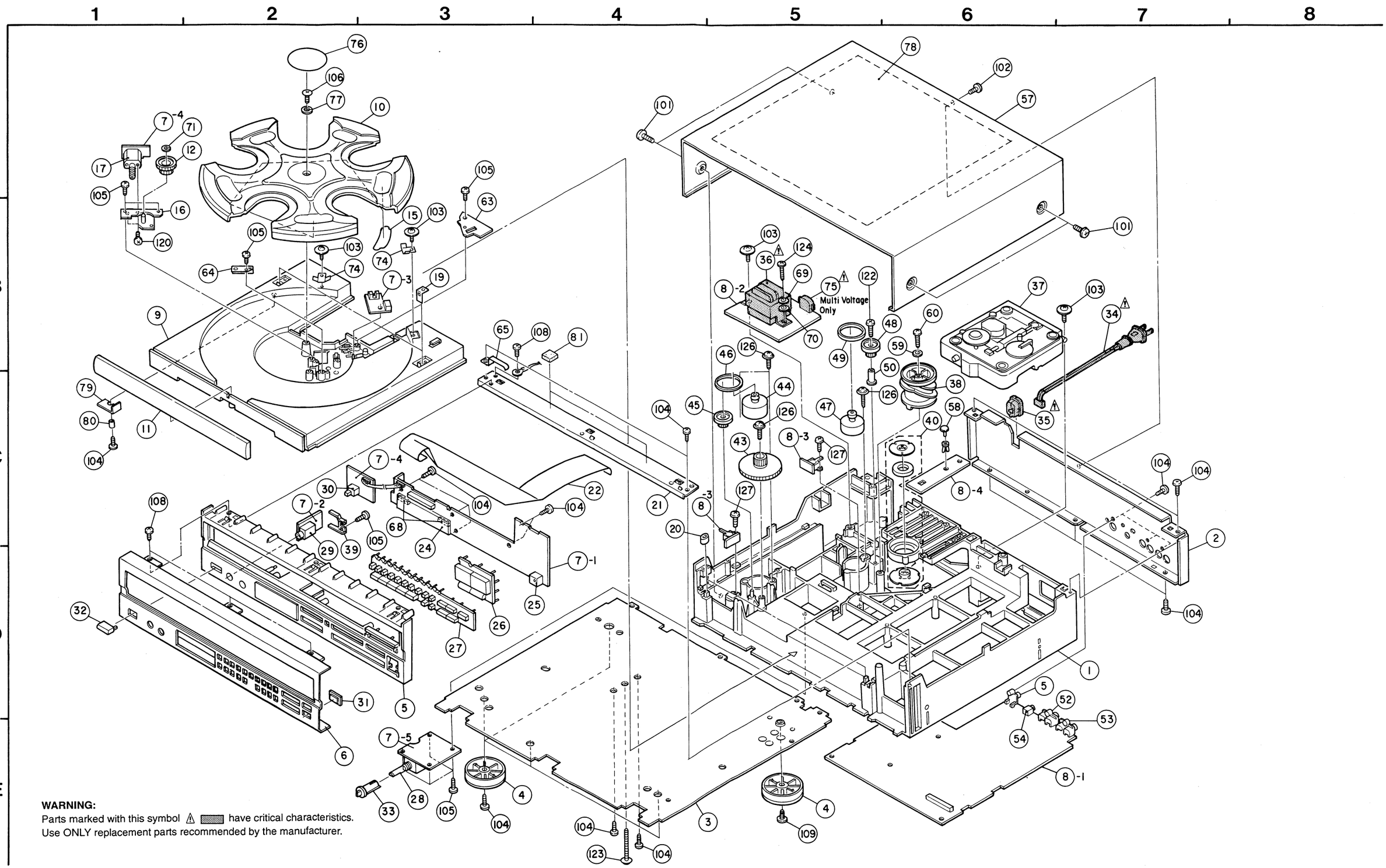
PARTS LIST OF MECHANISM UNIT (FG-40)

Ref. No.	Part No.	Part Name	Remarks
1	9KA 85A0 03	SPINDLE MOTOR ASS'Y	
2	9KA 90H0 06	FEED SHAFT FIX SCREW	
3	9KA 90H0 05	FEED SHAFT	
7	9KA 85G0 17	GEAR (A)	
8	9KA 85G0 18	GEAR (B)	
9	9KA 85G0 16	FRAME	
10	9KA 85P0 04	P.W.B.	
11	9KA 85H0 01	SCREW F	
12	9KA 85G0 13	DAMPER F	
13	9KS 01W1 47	SWITCH	LSA-1121EAU
14	9KA 85A0 04	SLIDE MOTOR ASS'Y	
16	499 0191 009	LASER P.U	KSS-240A
17	009 0051 014	FFC	FFC-240
18	443 1093 006	FFC BUSH	
19	9KA 85G2 53	5P CONN.BASE	S5B-PH
20	9KM 20S0 03	M2 x 3 TAMS SCREW	
21	9KA 85A0 02	CLAMPER	
24	9KA 85S0 01	SPRING (A)	
25	9KA 85S0 02	SPRING (B)	
26	9KA 85S0 03	SPRING (C)	

EXPLODED VIEW OF MECHANISM UNIT



EXPLODED VIEW (DCM-560)



WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

PARTS LIST OF EXPLODED VIEW (DCM-560)

Ref. No.	Part No.	Part Name	Remarks
◉ 1	103 1608 001	MECHA. CHASSIS	
◉ 2	105 1094 035	REAR PANEL(E3)	U.S.A. Canada
◉ 2	105 1094 048	REAR PANEL(E2)	Europe
◉ 2	105 1094 051	REAR PANEL(E1)	Multi.Voltage
◉ 3	105 0989 510	BOTTOM COVER	
4	104 0208 201	FOOT ASS'Y	
◉ 5	105 1522 307	SUB FRONT PANEL ASS'Y	
◉ 6	144 2179 006	FRONT PANEL	
◉ 6	144 2179 116	FRONT PANEL	U.S.A.,Canada
◉ 7	1U- 2788	DISPLAY UNIT ASS'Y	
◉ 7-1	—	DISPLAY UNIT	
◉ 7-2	—	HEAD PHONE UNIT	
◉ 7-3	—	ROULETTE SENSOR UNIT	
◉ 7-4	—	ROULETTE MOTOR UNIT	
◉ 7-5	—	VOLUME UNIT	
◉ 8	1U- 2787	P.W.B. UNIT ASS'Y	U.S.A., Canada
◉ 8	1U- 2787 B	P.W.B. UNIT ASS'Y	Europe
◉ 8	1U- 2787 D	P.W.B. UNIT ASS'Y	Multi.Voltage
◉ 8-1	—	MAIN UNIT	
◉ 8-2	—	POWER TRANS. UNIT	
◉ 8-3	—	LOADING SW. UNIT	
◉ 8-4	—	DISC SENSOR UNIT	
◉ 9	431 0313 603	CLAMPING SW. UNIT	
◉ 10	421 0593 413	ROULETTE	
11	146 1297 008	LOADER PANEL	
12	424 0174 404	HELICAL GEAR	
◉ 15	461 0689 008	HIMERON SHEET	
◉ 16	412 3484 208	GEAR BRACKET ASS'Y	
17	GEN 1682	ROULETTE MOTOR SUB ASS'Y	
◉ 19	412 3350 109	LOADER BRACKET	
◉ 20	461 0659 009	LOADER STOPPER	
◉ 21	412 3348 205	FRONT BRACKET	
22	009 0063 002	31P FFC CABLE	
24	393 4132 009	FL TUBE (FIP 8RM6)	
25	499 0150 008	REMOTE SENSOR (SBX1610-52)	
26	113 1496 003	FUNCTION KNOB	
27	113 1497 015	SERIES KNOB	
28	211 0747 002	VARIABLE RESISTOR	
29	204 8341 004	HEAD PHONE JACK	
30	212 1039 000	1P PUSH SWITCH	
31	143 0504 007	REMOTE SENSOR WINDOW	
32	113 1357 207	POWER SWITCH KNOB	
33	112 0703 008	HEAD PHONE KNOB	
⚠ 34	206 2110 004	AC CORD WITH CONNECTOR	U.S.A. Canada
⚠ 34	206 2089 106	AC CORD WITH CONNECTOR	Europe
⚠ 34	206 2088 000	AC CORD WITH CONNECTOR	Multi.Voltage
⚠ 35	445 0056 008	CORD BUSH	
⚠ 36	233 5941 010	POWER TRANSFORMER	U.S.A. Canada
⚠ 36	233 6063 010	POWER TRANSFORMER	Europe
⚠ 36	233 6061 012	POWER TRANSFORMER	Multi.Voltage
37	FG-40	CD MECHA. UNIT	
38	424 0172 202	CLAMPING CAM	
◉ 39	412 3371 007	SUPPORT BRACKET	
40	9KA 85A0 02	CLAMPER	
43	424 0173 104	LOADING GEAR	
44	GEN 1680	LOADING MOTOR SUB ASS'Y	
45	424 0130 011	PULLEY GEAR	
46	423 0061 006	BELT	
47	GEN 1678	CLAMP MOTOR SUB ASS'Y	
48	424 0130 008	PULLEY GEAR	
49	423 0061 006	BELT	
◉ 50	443 1161 006	COLLAR	
51	204 8356 002	1P PIN JACK	
52	204 8373 001	2P PIN JACK	
53	204 8373 001	2P PIN JACK	
54	204 8416 007	MINI JACK	
56	424 0093 226	WORM GEAR ASS'Y	
◉ 57	102 0479 102	TOP COVER	
58	477 0096 007	PUSH RIVET	
59	475 1005 017	4W WASHER	
60	473 7501 014	3×14 CBTS(P)-Z SCREW	
◉ 63	412 3499 002	BLIND PLATE	
64	461 0690 107	MOTOR SPRING	
◉ 65	412 3400 004	EARTH PLATE	
◉ 66	143 0568 001	FILTER	
◉ 68	461 0580 000	SPACER	
69	475 1106 042	WASHER	
70	475 3100 004	4TWA NI	
71	475 1157 017	SLIT WASHER T0.5	
◉ 74	441 1402 112	ROULETTE STOPPER	
⚠ 75	212 4698 009	VOLTAGE SELECTOR	Multi.Voltage
76	125 0070 009	BLIND SHEET–V	
77	475 1160 004	WASHER	
78	441 1687 005	TOP PLATE	
79	412 3945 006	L. BRACKET	
80	443 1411 002	COLLAR	
81	461 0873 005	FRONT PAD	
101	473 7509 016	4×10 CBTS(P)-B SCREW	
102	473 7015 018	3×8 CBTS(S)-B SCREW	
103	477 0262 006	SPECIAL SCREW	
104	473 7508 017	3×10 CBTS(P)-B SCREW	
106	473 7512 016	3×12 CFTS(P)-B SCREW	
108	473 7002 021	3×8 CBTS(S)-B SCREW	
109	473 7002 018	3×8 CBTS(S)-Z SCREW	
120	471 8301 039	2×3 CBS-Z SCREW	
122	473 7508 059	3×20 CBTS(P)-B SCREW	
123	473 0840 064	3×30 CPTS(B)ZN	
124	473 7501 030	3×20 CBTS(P)–Z	

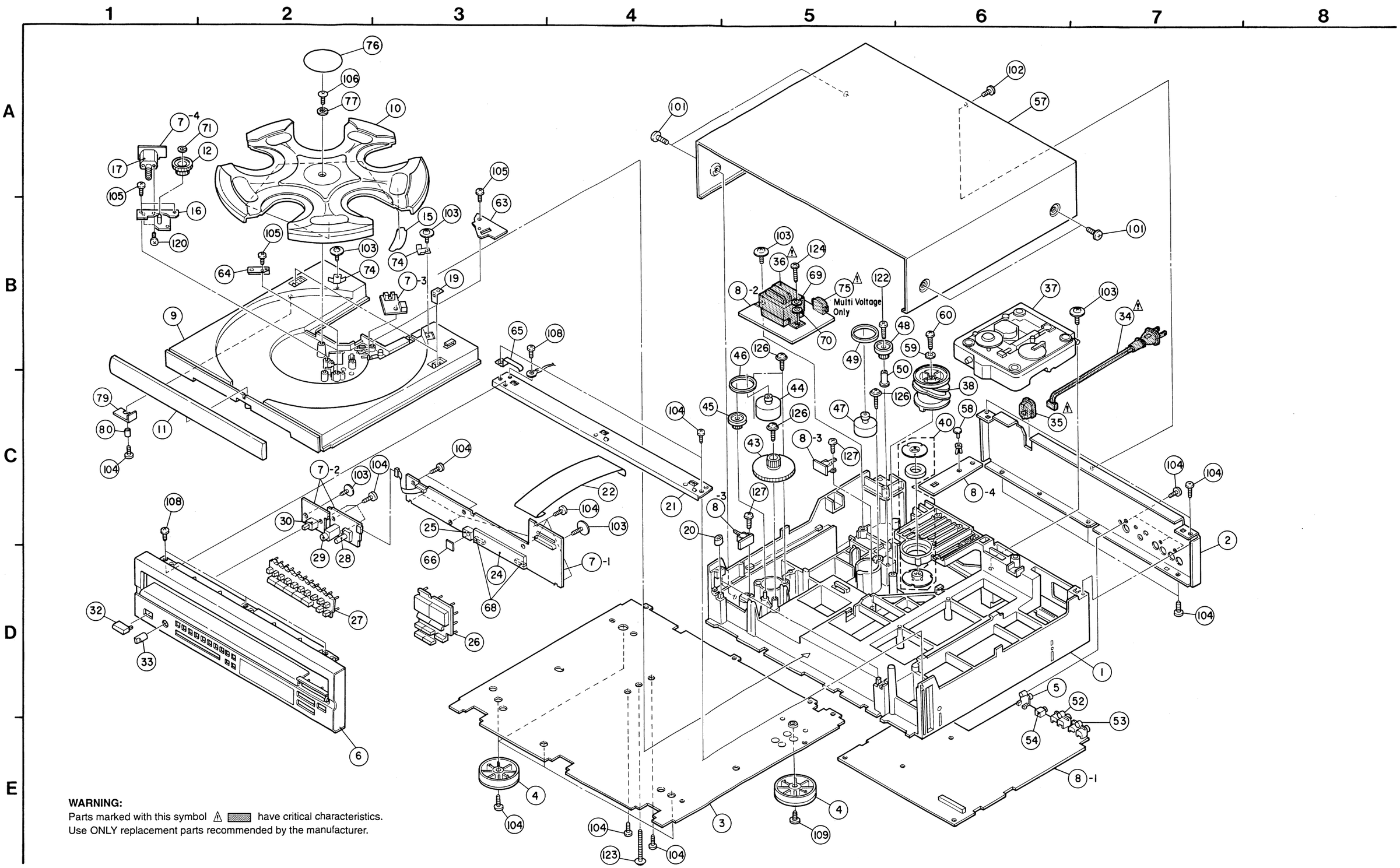
WARNING :

Parts marked with " ⚠ " and/shading have special characteristics important to safety.
Be sure to use the specified parts for replacement.
Parts indicated with the mark " ◉ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of parts may be refused.

PARTS LIST OF PACKING & ACCESSORIES (DCM-560)

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉	505 0102 089	Styrene Paper	For set	1
◉	504 0092 060	Styrene Paper	For AC cord	1
◉	503 1125 001	Cushion		2
◉	501 1857 014	Carton Case		1
◉	505 8006 019	Envelope		1
◉	511 2703 003	Instruction Manual	U.S.A. Canada	1
◉	511 2704 008	Instruction Manual	Europe	1
◉	515 0690 006	DEL Warranty Home	U.S.A. Canada	1
	203 2360 004	2P Pin Cord		1
	499 0226 000	Remote Control Unit(RC-239)		1

EXPLODED VIEW (DCM-460)



WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

PARTS LIST OF EXPLODED VIEW (DCM-460)

Ref. No.	Part No.	Part Name	Remarks
◉ 1	103 1608 001	MECHA. CHASSIS	
◉ 2	105 1094 035	REAR PANEL(E3)	U.S.A. Canada
◉ 2	105 1094 048	REAR PANEL(E2)	Europe
◉ 2	105 1094 051	REAR PANEL(E1)	Multi.Voltage
◉ 3	105 0989 507	BOTTOM COVER	
4	104 0208 201	FOOT ASS'Y	
◉ 6	146 1445 245	FRONT PANEL ASS'Y	
◉ 7	3U- 2576	DISPLAY UNIT ASS'Y	
◉ 7-1	—	DISPLAY UNIT	
◉ 7-2	—	HEAD PHONE UNIT	
◉ 7-3	—	ROULETTE SENSOR UNIT	
◉ 7-4	—	ROULETTE MOTOR UNIT	
◉ 8	1U- 2785	P.W.B. UNIT ASS'Y	U.S.A., Canada
◉ 8	1U- 2785 B	P.W.B. UNIT ASS'Y	Europe
◉ 8	1U- 2785 D	P.W.B. UNIT ASS'Y	Multi.Voltage
◉ 8-1	—	MAIN UNIT	
◉ 8-2	—	POWER TRANS. UNIT	
◉ 8-3	—	LOADING SW. UNIT	
◉ 8-4	—	DISC SENSOR UNIT	
◉ 9	431 0313 603	CLAMPING SW. UNIT	
◉ 10	421 0593 400	ROULETTE	
11	146 1297 008	LOADER PANEL	
12	424 0174 404	HELICAL GEAR	
◉ 15	461 0689 008	HIMERON SHEET	
◉ 16	412 3484 208	GEAR BRACKET ASS'Y	
17	GEN 1682	ROULETTE MOTOR SUB ASS'Y	
◉ 19	412 3350 109	LOADER BRACKET	
◉ 20	461 0659 009	LOADER STOPPER	
◉ 21	412 3348 205	FRONT BRACKET	
22	009 0090 004	35P FFC CABLE	
24	393 4132 009	FL TUBE (FIP 8RM6)	
25	499 0150 008	REMOTE SENSOR (SBX1610-52)	
26	113 1462 215	FUNCTION KNOB	
27	113 1461 009	SERIES KNOB	
28	211 0661 010	VARIABLE RESISTOR (V0920P30FC202)	
29	204 8364 007	HEAD PHONE JACK	
30	212 1039 000	1P PUSH SWITCH	
32	113 1357 207	POWER SWITCH KNOB	
33	112 0645 108	HEAD PHONE KNOB	
⚠ 34	206 2110 004	AC CORD WITH CONNECTOR	U.S.A. Canada
⚠ 34	206 2089 106	AC CORD WITH CONNECTOR	Europe
⚠ 34	206 2088 000	AC CORD WITH CONNECTOR	Multi.Voltage
⚠ 35	445 0056 008	CORD BUSH	
⚠ 36	233 5941 010	POWER TRANSFORMER	U.S.A. Canada
⚠ 36	233 6063 010	POWER TRANSFORMER	Europe
⚠ 36	233 6061 012	POWER TRANSFORMER	Multi.Voltage
37	FG-40	CD MECHA. UNIT	
38	424 0172 202	CLAMPING CAM	
40	9KA 85A0 02	CLAMPER	
43	424 0173 104	LOADING GEAR	
44	GEN 1680	LOADING MOTOR SUB ASS'Y	
45	424 0130 011	PULLEY GEAR	
46	423 0061 006	BELT	
47	GEN 1678	CLAMP MOTOR SUB ASS'Y	
48	424 0130 008	PULLEY GEAR	
49	423 0061 006	BELT	
◉ 50	443 1161 006	COLLAR	
51	204 8356 002	1P PIN JACK	
52	204 8373 001	2P PIN JACK	
53	204 8373 001	2P PIN JACK	
54	204 8416 007	MINI JACK	
56	424 0093 226	WORM GEAR ASS'Y	
◉ 57	102 0479 102	TOP COVER	
58	477 0096 007	PUSH RIVET	
59	475 1005 017	4W WASHER	
60	473 7501 014	3×14 CBTS(P)-Z SCREW	
◉ 63	412 3499 002	BLIND PLATE	
64	461 0690 107	MOTOR SPRING	
◉ 65	412 3400 004	EARTH PLATE	
◉ 66	143 0568 001	FILTER	
◉ 68	461 0580 000	SPACER	
69	475 1106 042	WASHER	
70	475 3100 004	4TWA NI	
71	475 1157 017	SLIT WASHER T0.5	
◉ 74	441 1402 112	ROULETTE STOPPER	
⚠ 75	212 4698 009	VOLTAGE SELECTOR	Multi.Voltage
76	125 0070 009	BLIND SHEET–V	
77	475 1160 004	WASHER	
79	412 3945 006	L. BRACKET	
80	443 1411 002	COLLAR	
101	473 7509 016	4×10 CBTS(P)-B SCREW	
102	473 7015 018	3×8 CBTS(S)-B SCREW	
103	477 0262 006	SPECIAL SCREW	
104	473 7508 017	3×10 CBTS(P)-B SCREW	
106	473 7512 016	3×12 CFTS(P)-B SCREW	
108	473 7002 021	3×8 CBTS(S)-B SCREW	
109	473 7002 018	3×8 CBTS(S)-Z SCREW	
120	471 8301 039	2×3 CBS-Z SCREW	
122	473 7508 059	3×20 CBTS(P)-B SCREW	
123	473 0840 064	3×30 CPTS(B)ZN	
124	473 7501 030	3×20 CBTS(P)–Z	

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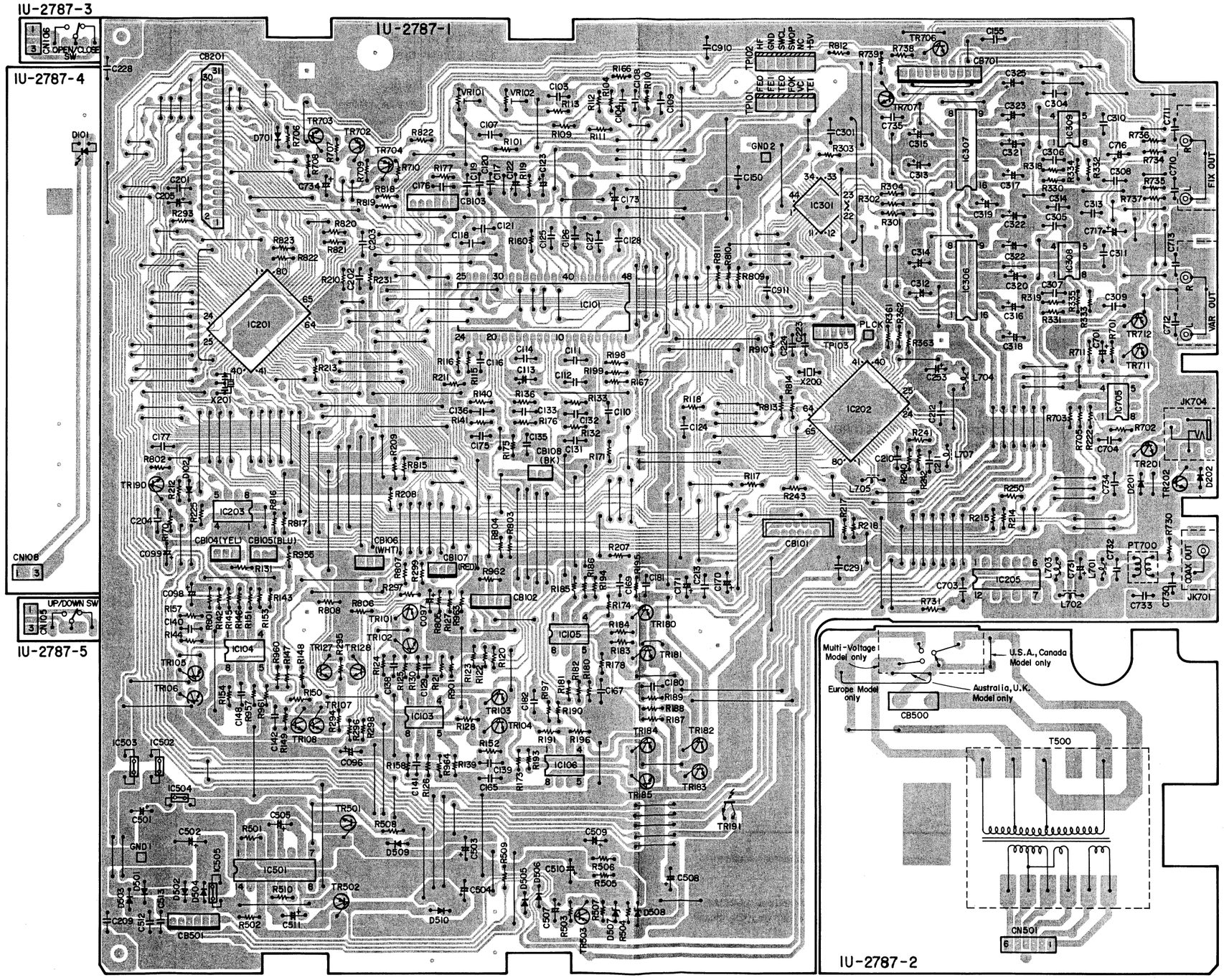
PARTS LIST OF PACKING & ACCESSORIES (DCM-460)

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉	505 0102 089	Styrene Paper	For set	1
◉	504 0092 060	Styrene Paper	For AC cord	1
◉	503 1125 001	Cushion		2
◉	501 1857 014	Carton Case		1
◉	505 8006 019	Envelope		1
◉	511 2700 002	Instruction Manual	U.S.A. Canada	1
◉	511 2701 001	Instruction Manual	Europe	1
◉	515 0690 006	DEL Warranty Home	U.S.A. Canada	1
	203 2360 004	2P Pin Cord		1
	499 0266 002	Remote Control Unit(RC-246)		1

P.W.BOARD

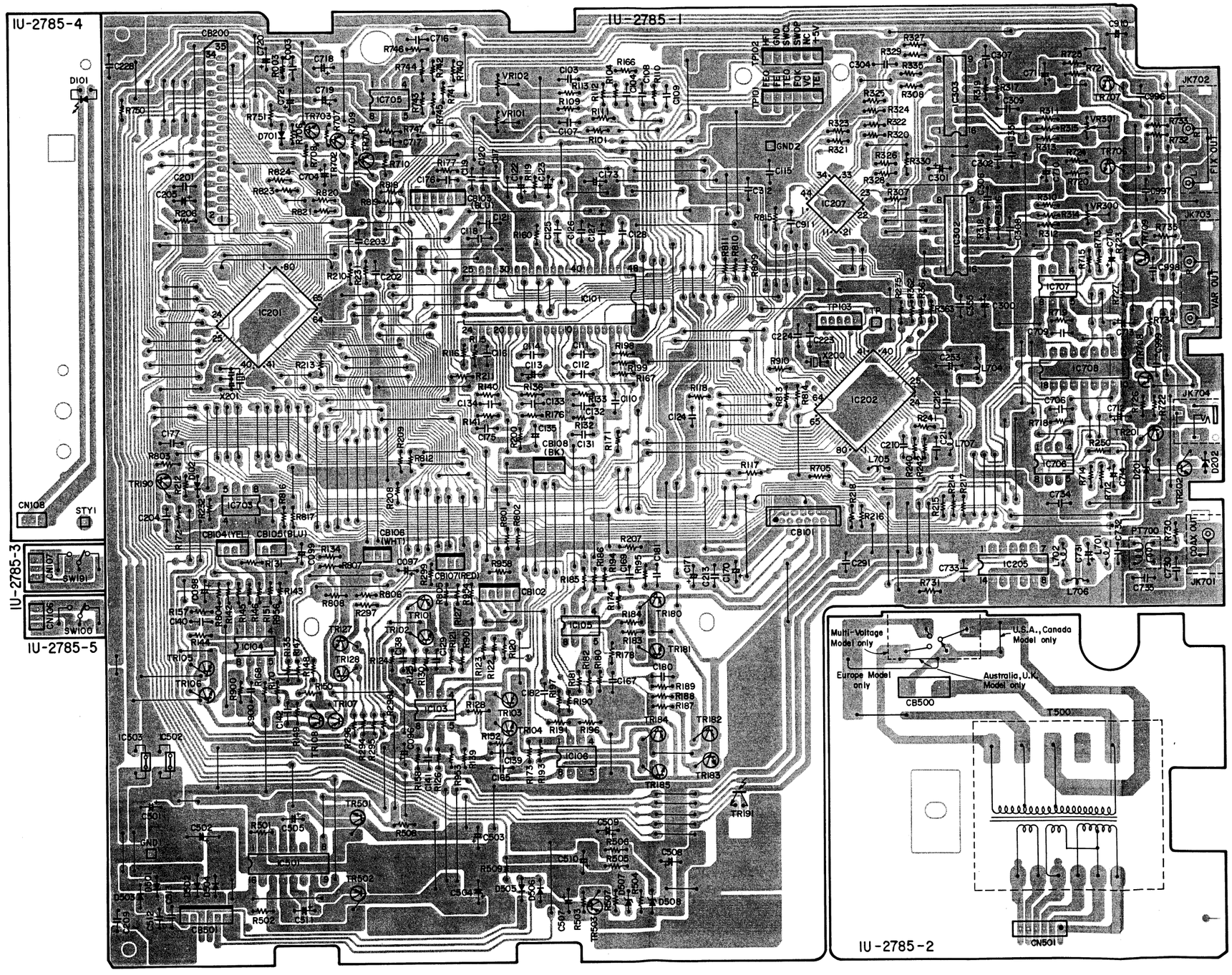
1U-2787 MAIN UNIT (DCM-560)



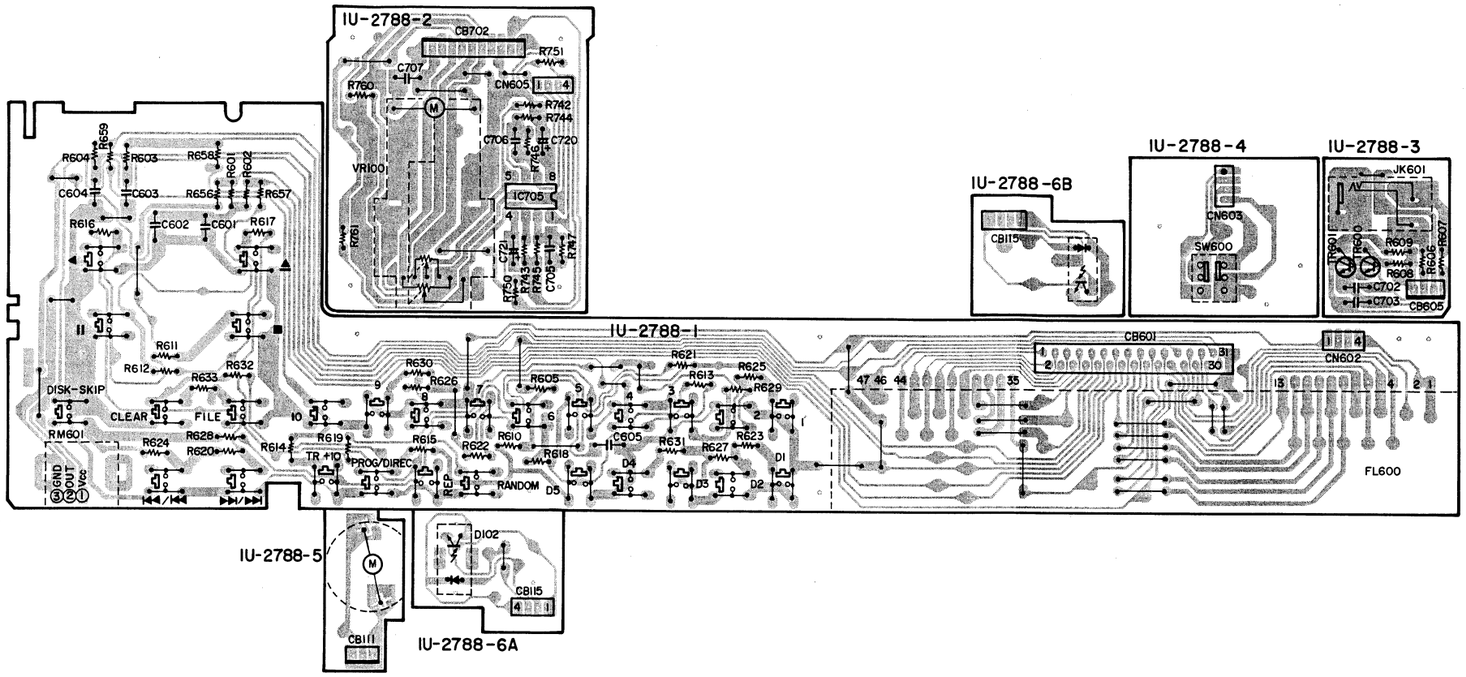
1 2 3 4 5 6 7 8

A B C D E

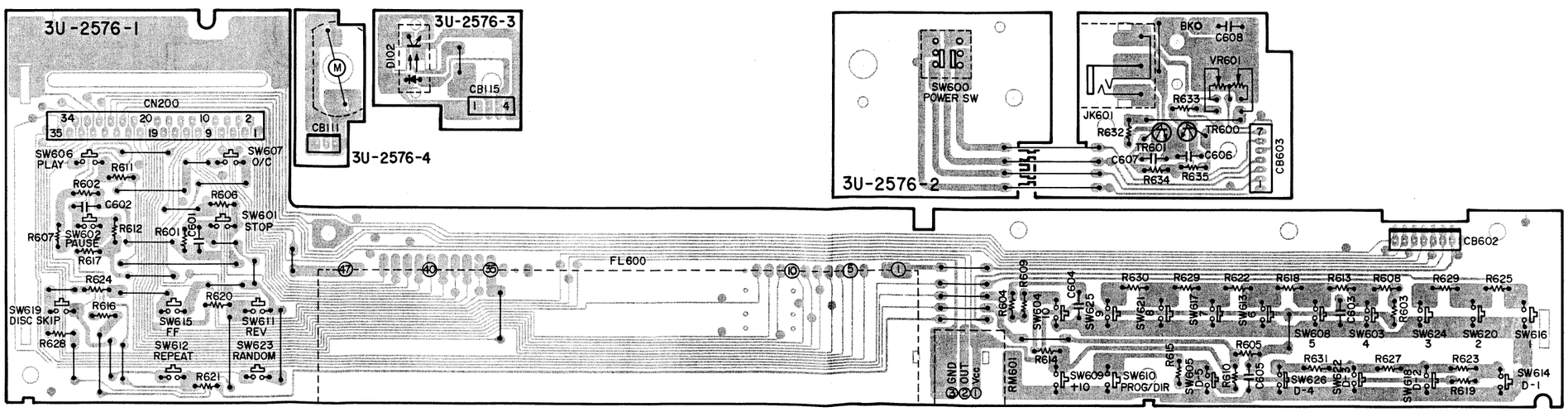
1U-2785 MAIN UNIT (DCM-460)



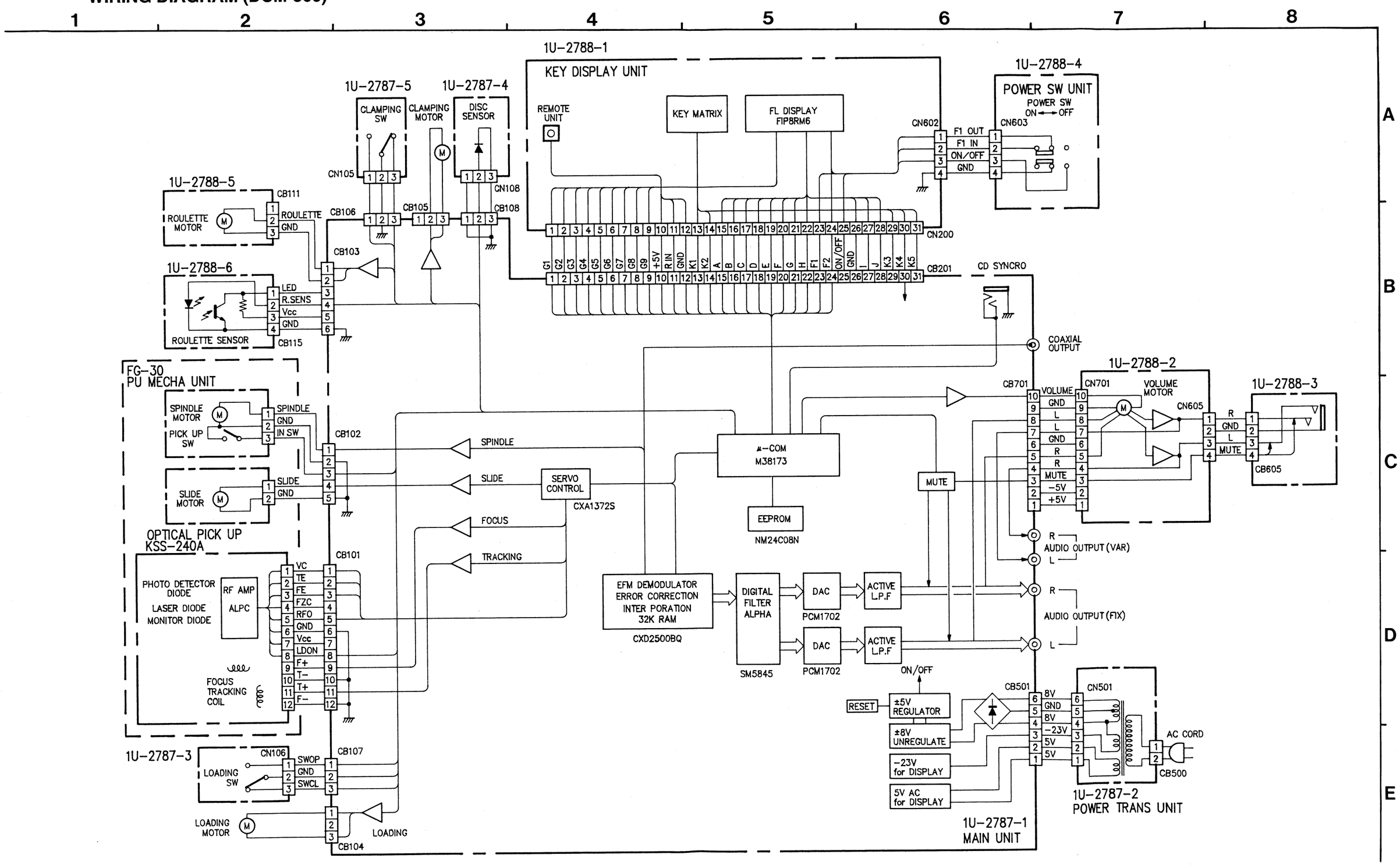
1U-2788 DISPLAY UNIT (DCM-560)



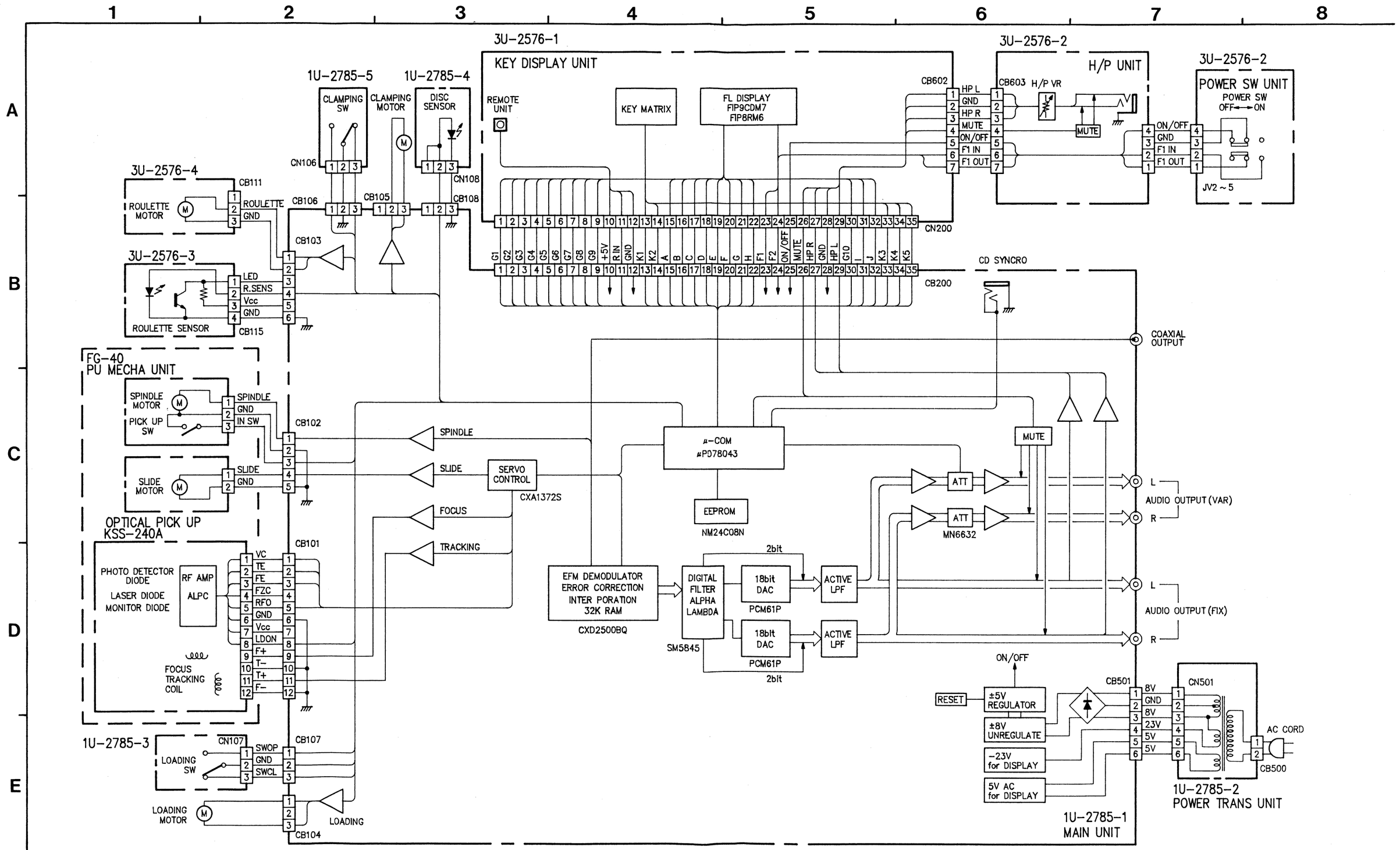
3U-2576 DISPLAY UNIT (DCM-460)



WIRING DIAGRAM (DCM-560)



WIRING DIAGRAM (DCM-460)



SCHEMATIC DIAGRAM (DCM-560)

1 2 3 4 5 6 7 8

IC	IC106 IC104 IC103 IC105 IC104 IC106 IC105 IC101 IC202 IC205 IC201
TRANSISTOR	TR185 TR184 TR108 TR107 TR104 TR103 TR183 TR182 TR106 TR105 TR102 TR101 TR181 TR180 TR128 TR127 TR190 TR191
DIODE	D102 D101

1U-2787-1

SPINDLE MOTOR M101 CN102 CB102(WHT)
SW102 INMOST SW
SLIDE MOTOR M103
CB101
VC TE FE FZC RF GND Vcc LDC FCS+ TRK+ TRK- FCS-
IN MOST SWCL SWOP
LASW
TP102 HF TOP SWCL SWOP NC +5V
TP101 FEO FEI TEO FOK VC TEI
FOK SENSE
C170 47/16 C177 0.1 D102 1SS198
C103 0.0033 R104 7.5k C104 560p
C107 0.027 R111 39k
C108 0.0022
C109 0.1 C110 0.1 C111 0.1 C112 0.1
VR102 22k R113 10k R112 56k R166 100k R167 10k
R110 200k R901 9.1k VR101 22k R109 10k
R198 150k R199 110k
C175 0.1 C135 10/35 BP C133 10p R136 100k
R176 91k R175 47k
C171 47/16
IC101 CXA1372S
TE TDFCT ATSC FZC FE FDFCT VC FGD FS3 FLB FEO FE- SRCH TGU TG2 AVcc TA0 TA- SL+ SL0 SL- FSET I SET S STOP
TZC DVEE RFO RF1 CP CB DVcc CS1 CS2 FOK EFM ASY DFCT MIRR D GND SENSE C OUT XRST DATA XLT LOCK DIRC AVEE
C128 0.01 C127 0.0033 C126 0.01 C125 0.033 C150 0.1 C173 47/16 C123 0.22/50 C122 0.22/50 C124 0.01
R117 1k R160 33k R119 100k R118 10k
C113 6.8/50 C114 0.22
C116 0.01 R115 680k R116 240k
C118 1000p C119 1000p C121 0.01 C120 0.01 C117 0.1
R133 150k R132 290k C131 0.0056 C132 75p
R141 11k C134 82p R140 82k C153 0.1
+5V +8V -8V
IC106(2/2) BA15218
TR185 2SD468 C182 15p R197 100k R190 47k R193 220 (R173) (C165) R196 100k R191 47k TR184 2SB562
IC105(1/2) BA15218
TR183 2SD468 C181 75p R195 100k R185 47k R187 220 R188 220 (R173) (C169) R194 100k R186 47k TR182 2SB562
IC105(2/2) BA15218
TR181 2SD1913 C180 15p R189 100k R181 47k R183 220 R184 220 (R178) (C167) R180 100k R182 47k TR180 2SB562
FB705
COAX OUT
C730 0.1 R730 75
R731 100 C703 0.1
PT900 PULSE TRANS
FB701 C732 100p C731 33/16 FB702
R860
IC205 TC74HCU04
R361 1k R362 1k R363 1k
BCK DATA LRCK
IC202 CXD2500AQ
MIRR COUT CLK XLT DATA XRST SENS MUTE SQCK SUBQ CN IN CLK Vss XLT DATA XRST SENS MUTE SQCK SQSO XCK
FOK FSW MON MDP MDS LOCK NC VCOO VCOI TEST PDO Vss NC NC NC VPCO VCKI FIEO FIEI PCO AVss CLTV AVdd RF
SBSO SCOR WFCK EMPH D OUT MD2 C16M C4M FST XTSL XTAO XTAI Vss APTL APTR MNT0 MNT1 MNT2 MNT3 XRAOV C2PO RFCX GFS XPLCK
SCOR
R243 2k R910 1k C911 0.001
X200 16.9344MHz C223 5p C224 5p
TP103
GFS
T.P
R242 10k C210 0.047 R240 3.3k R241 6.8k C211 0.0015 C253 220/16 C212 0.1
FB704 FB707
TEST TEST TEST TEST NC VSSL WDCK LRCK Vss DATA BCK DATA BCK LRCK GTOP
LRCK DATA BCK
5V

1U-2787-5

CLAMPING UP/DOWN SW CN105 CB106 (WHT)
SW UP SW DOWN
CLAMPING MOTOR CB105 (BLU)
LOADING MOTOR CB104 (YEL)
IC104(1/2) BA15218
TR108 2SD468 R149 68k R957 18k R150 22 C42 51p R148 130k PB UP R147 130k PB DOWN TR107 2SB562 C145 0.1 R154 22 R961 82k R960 18k R955 1
IC104(2/2) BA15218
TR106 2SD468 R145 75k R146 18k R144 220 R142 130k OPEN R143 130k CLOSE (C140) (R157) R153 18k TR105 2SB562 C098 22/50 C099 22/50
+8V -8V
R151 68k
R131 1 C096 0.47/50 R296 3.3k TR128 2SD468 R294 47k R-SPEED
C097 0.47/50 R297 3.3k TR127 2SD468 R295 47k R964 20k

1U-2788-5

ROULETTE MOTOR CB111
CB103 (BLU)
IC103(2/2) BA15218
TR104 2SD468 R152 62k C139 51p R128 220 (C141) R126 110k R127 110k (R158) R139 62k R299 10k R298 10k TR103 2SB562
TR102 2SD468 R130 110k C129 0.0047 R125 220 C138 0.1 R124 22 TR101 2SB562
R121 47k R120 10k MON R122 6.8k MOP R123 3.3k R901 10k
R963 20k
IC106(1/2) BA15218
R177 470 R962 1 C152 0.1 C176 0.01
ROLET R ROLET L R SENS
CB115
REG
ROULETTE SENSOR

1U-2788-6

1U-2788-4

CN603 CB602
F1 OUT F1 IN ON/OFF GND
OFF ⟷ ON SW600 POWER SW

1U-2788-1

FL600 FIP8RM6
F1 OUT F1 OUT
SW601 STOP SW606 PLAY SW611 REV SW615 FF SW619 D.SKIP SW623 RANDOM
SW602 PAUSE SW607 O/C SW612 REP SW616 1 SW620 2 SW624 3
SW603 4 SW608 5 SW613 6 SW617 7 SW621 8 SW625 9
SW604 10 SW609 +10 SW614 D-1 SW618 D-2 SW622 D-3 SW626 D-4
SW605 D-5 SW610 PROG/DIRECT SW627 CLR SW628 FILE
K1 K2 K3 K4 K5
R601 1k R606 150 C601 0.001 R611 180 R616 300 R620 430 R624 680 R628 1.3k
R602 1k R607 150 C602 0.001 R612 180 R617 300 R621 430 R625 680 R629 1.3k
R603 1k R608 150 C603 0.001 R613 180 R618 300 R622 430 R626 680 R630 1.3k
R604 1k R609 150 C604 0.001 R614 180 R619 300 R623 430 R627 680 R631 1.3k
R605 1k R610 150 C605 0.001 R615 180 R632 300 R633 430
RM601 SBX1610-52
+5V PR IN Vcc OUT GND
CN200

( ) RESISTOR IS ONLY ONE TIME

R820 100k R821 100k (100k) (100k)
IC201 UPD78043
VLOAD
GFS FOK J I H G F E D C B A G10 G9 G8 G7 G6 G5 G4 G3 G2 G1 Vpp CLK DATA NC(MAINS) NC NC(SHIFTN) NC SUBQ RESET
SWOP SWCL SWCL SWOP SWDOWN SWUP TWZ CLOSE OPEN ROLETR ROLETL PBDOWN PBUP Vcc VROMHD VROMLD VRSTEP
R819 10k R818 10k R817 10k R816 100k R801 100k R802 100k R803 100k R804 100k R805 100k R806 100k R807 100k R808 100k R217 10k R216 10k
R809 10k R811 10k R810 10k R812 10k R813 10k R814 10k
DSENS TR190 DTC144ES -23V
CB107 CN107 LOADING OPEN/CLOSE SW 1U-2787-3
CB108 CN108 DISC SENSOR GL450 1U-2787-4
R171 200 R170 4.7k TR191 FMW1F C204 0.1
K5 K4 K3 J G10 ON/OFF F2 FTIN H F1 E D C B A K2 K1 GND PRIN +5V K5

8 9 10 11 12 13 14 15

A B C D E

IC205 IC201 IC301 IC203 IC307 IC306 IC501 IC103 IC309 IC308 IC309 IC308 IC705

R191 TR201 TR202 TR503 TR501 TR502 TR711 TR712 TR704 TR702 TR703 TR707 TR706 TR600 TR601

D201 D202 D509 D508 D506 D507 D505 D501 D502 D503 D504 D701

COAX OUT

PT900 PULSE TRANS

IC205 TC74HCU04

X200 16.9344MHz

IC301 SM5845AF

IC307 PCM1702

IC306 PCM1702

IC309(1/2) μPC4570C

IC309(2/2) μPC4570C

IC308(1/2) μPC4570C

IC308(2/2) μPC4570C

TR707 2SD2144

TR706 2SD2144

TR704 DTA124X

TR702 DTC114ES

TR703 DTC114ES

TR711 2SB562

TR712 2SB562

TR501 2SD1913

TR502 2SB1274

TR201 DTC114ES

TR202 DTC114ES

TR601 2SD2144

TR600 2SD2144

IC201 UPD78043

IC203 X24C08P EEPROM

IC103 BA15218

IC705(1/2) BA15218

IC705(2/2) BA15218

IC501 M5290P

IC502 ICPN15

IC503 ICPN15

IC504 ICPN15

IC505 ICPN15

X201 4.23MHz

TP103

T.P

CN701

CN605

CN501

CB701

CB605

CB500

CB501

CB201

JACK704 CD SYNCRO

CHASSIS

POWER TRANS

AC IN

H/P JACK

1U-2787-2

2U-2372-2

2U-2372-3

+B LINE

-B LINE

SIGNAL LINE

NOTES

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM

ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD

EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.

CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

WARNING:

Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

WARNING:

DO NOT return the unit to the customer until the problem is located and corrected.

SCHEMATIC DIAGRAM (DCM-460)

IC	IC106 IC104	IC103	IC105	IC104 IC103	IC105	IC101	IC203	
TRANSISTOR	TR185 TR184 TR108 TR107 TR104 TR103		TR183 TR182	TR106 TR105 TR102	TR181 TR180 TR101 TR128 TR127			TR190
DIODE	D102							

WARNING:
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NOTES
ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM

ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD

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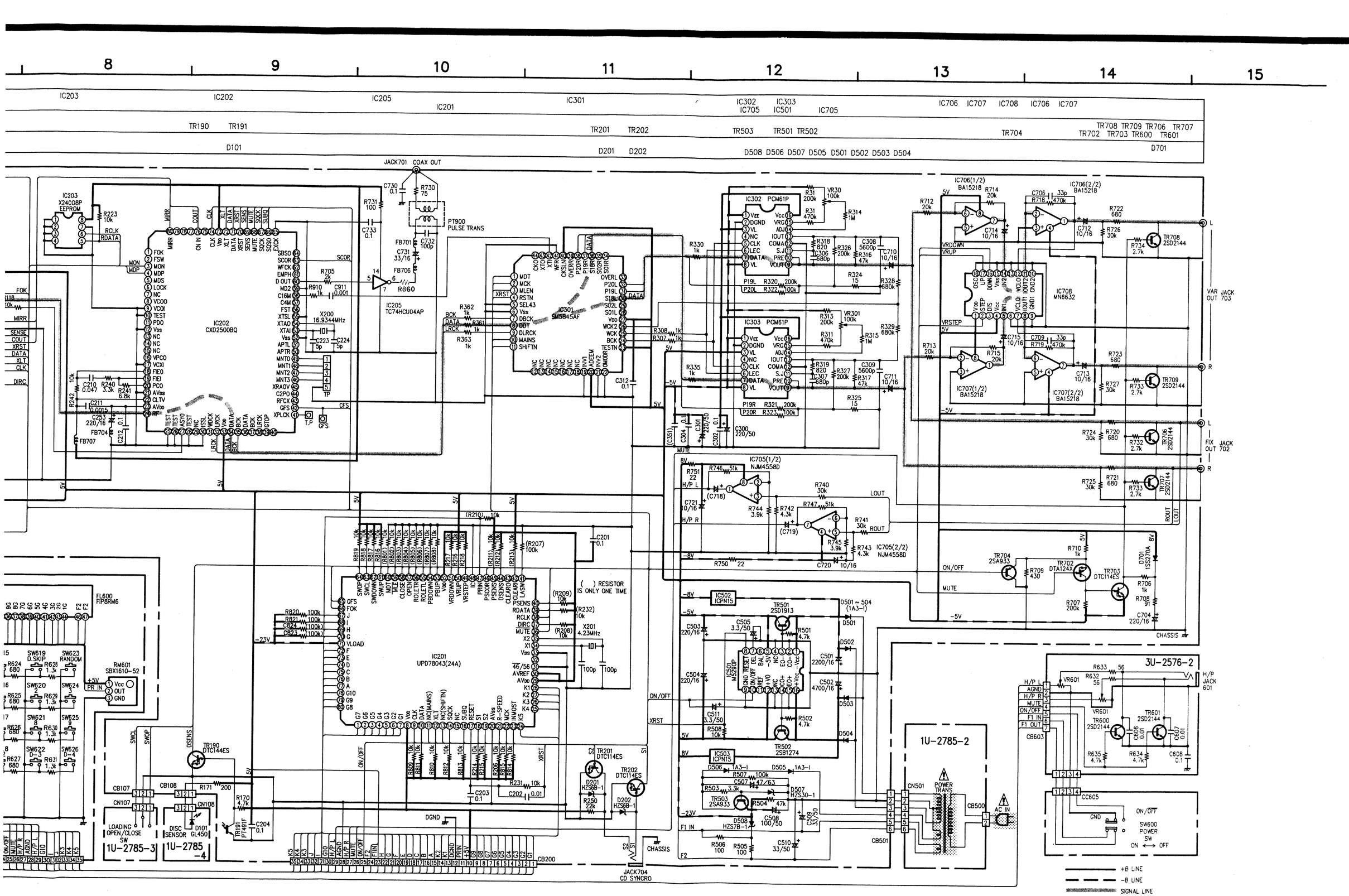
8
9
10
11
12
13
14
15
IC203
IC202
IC205
IC201
IC301
IC302
IC705
IC303
IC501
IC705
IC706
IC707
IC708
IC706
IC707
TR190
TR191
TR201
TR202
TR503
TR501
TR502
TR704
TR708
TR709
TR706
TR707
TR702
TR703
TR600
TR601
D101
D201
D202
D508
D506
D507
D505
D501
D502
D503
D504
D701
JACK701 COAX OUT
PT900 PULSE TRANS
IC203 X24C08P EEPROM
IC202 CXD2500BQ
IC205 TC74HCU04AP
IC301 SM5845AF
IC302 PCM61P
IC303 PCM61P
IC706(1/2) BA15218
IC706(2/2) BA15218
IC707(1/2) BA15218
IC707(2/2) BA15218
IC708 MN6632
VAR JACK OUT 703
FIX JACK OUT 702
IC201 UPD78043(24A)
IC705(1/2) NJM4558D
IC705(2/2) NJM4558D
IC502 ICPN15
IC503 ICPN15
TR501 2SD1913
TR502 2SB1274
TR503 2SA933
IC501 M52940P
FL600 FIP8RM6
SW619 D.SKIP
SW623 RANDOM
SW620
SW624
SW621
SW625
SW622
SW626
RM601 SBX1610-52
TR190 DTC144ES
TR191 PT491F
TR201 DTC114ES
TR202 DTC114ES
LOADING OPEN/CLOSE SW 1U-2785-3
DISC SENSOR GL450 1U-2785-4
1U-2785-2
POWER TRANS
AC IN
CB500
CB501
CN501
3U-2576-2
H/P JACK 601
SW600 POWER SW ON ⟷ OFF
JACK704 CD SYNCRO
CHASSIS
DGND
+B LINE
-B LINE
SIGNAL LINE
( ) RESISTOR IS ONLY ONE TIME